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ORIGINAL ARTICLES.

A STUDY OF THE TEMPERATURE LAWS IN EPILEPSY BASED ON ONE THOUSAND OBSERVATIONS.

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BOURNEVILLE, editor of the *Archives of Neurology*, physician to the Bicêtre Hospital, Paris, disciple of Charcot, and editor of the complete works of the latter, seems to have been both the earliest and the most voluminous writer on the above subject. His studies date from the year 1869 to the present decade. His graduation thesis was upon the temperature in cerebral diseases, and he has contributed to medical literature at least a dozen papers upon the temperature in epilepsy and allied conditions alone. His works may be divided chronologically into two periods, the first from 1869 to 1886, the second from 1886 to the present time.

The reason for this subdivision is as follows: During the earlier period Bourneville had, to his own satisfaction and apparently to that of his colleague and that of most physicians, so thoroughly demonstrated the phenomena of the rise of temperature connected with epileptic paroxysms that the fact was taught dogmatically by Charcot and other eminent men. However, in the year 1886 a German, Witkowski by name, attempted to discredit both the observations and conclusions of Bourneville. The latter then repeated his experiments very carefully and published new and exhaustive data; and his colleague and disciple, Prof. Lemoine of Lille, also conducted a series of observations even more exhaustive than Bourneville's, so that between the two the facts seem established for all time.

It is somewhat unfortunate, perhaps, that of the writings of Bourneville during the first period, that is from 1869 to 1886, not one is to be found in the library of the New York Academy of Medicine, nor are there any reviews or extracts in temperature literature, except a few quotations elsewhere presented in this paper.

It is fortunate, however, that all of Bourneville's writings of the second period, namely, from 1886 to the present time, are to be found in this country, and, as the author himself repeatedly says, he confirms all his earlier findings, thus justifying, he claims, his original views which had been attacked by Witkowski. It is unfortunate that none of the studies of Witkowski are accessible at this time.

It is of interest and may be of some value to give a few citations from Bourneville's earlier writings.

Seguin[1] sums up certain observations which include Bourneville's: (1) During and between isolated seizures the temperature fluctuates. Clouston first noted an initial fall preceding the attack, but Charcot, Bourneville and others note a rise during the paroxysm and a fall between the paroxysms. (2) During the status epilepticus the temperature progressively increases, the remissions being less and less marked and in a few hours it attains 40° to 41° C. (3) The epileptiform attacks of general paralysis of the insane are always followed by high temperature which persists several days. (4) The epileptiform convulsions of hysteria show a relatively low temperature during a high degree of status epilepticus. In one case of convulsions persisting three months, the maximum temperature was only 38.5° C., while the mean was 37.4° to 37.8° C.

Gowers[2] cites Bourneville's statement that in status epilepticus with fatal termination the temperature runs up to 105 and 107° F.

Rosenthal[3] cites Bourneville on status epilepticus, the high temperature (40° to 43° C.), its persistence during the intervals between convulsions, and even increasing after convulsions have ceased.

Bourneville also mentions that his views were approved in the works of Laveran and Teissier (1876, page 63) and Axenfeld and Huchard (1883, page 782). The few authors, then, who quote from Bourneville's earlier writings, speak only of the high temperature of the status epilepticus.

Witkowski, who attacked Bourneville's views in the article "Ueber epileptisches Fieber, etc.,"[4] says that he has taken the temperature of epileptics for many years and, while there is often enough a slight rise of temperature during the paroxysm, it is often absent, and that there is no necessary relationship between the two. The exact cause of the phenomenon is undetermined. Witkowski, however, gives no figures or tables and, when his statements are contrasted with the careful, scientific and thorough work of Bourneville and Lemoine, his paper would seem to make a poor impression; in this case it appears that it is the Frenchman who is patient and accurate, and the German who is loose and flighty.

Before proceeding with a closer description of the work done by Bourneville, let me review one of the observations made by Seguin, as cited by Bourneville in his earlier writings.

In referring to the temperature in the epileptiform attacks of general paralysis, Seguin says:

[1] Medical Thermometry, 1876, page 226.
[2] Epilepsy, etc.
[3] American Edition, 1879.
[4] Berlin klin. Wochenschrift, Oct. 25, 1886.

"The epileptiform attacks of general paralysis of the insane are always followed by high temperature which persists several days." I am quite convinced that in this statement Seguin is wrong. During 1888-89 and 1890, at the New Jersey State Hospital for the Insane at Morris Plains, I had under my immediate observation twenty cases of general paralysis of the insane, two of whom were women, the rest men. All of them were carefully watched and studied, and not one of them ever had a general epileptiform convulsion or an epileptiform seizure of any kind that was followed by the usual train of post-epileptic symptoms, such as coma, sleep, etc. Most of the cases did have, however, toward the latter part of the second stage of the disease, and before the bed-ridden period of its third stage, frequent monoplegic attacks, convulsive in nature, that generally occurred in the right arm with occasional involvement of the left arm and legs, the rule being that a single member only was affected at one time. In such cases there was never any elevation of temperature, and I am inclined to think that the persistent high temperature following epileptiform seizures in cases of general paralysis, as noted by Seguin, was due not to the seizures but to the inflammatory changes going on in the cortical substance of the brain and which constituted the essential lesion of the disease. Then, again, it is perfectly reasonable to assume that any influence sufficient to disturb the pathological changes in progress would cause a temporary increased elevation of temperature; but it would not arise were it not for the already diseased brain.

Personally, I have never seen any elevation of temperature following epileptiform seizures in general paralysis of the insane that I felt justified in differentiating from the fever that was naturally due to pre-existing conditions and that was symptomatic of the existing brain lesion.

During the latter part of the third stage of general paralysis, when the patient becomes bedridden through sudden rapid progress of the disease, I have observed that the temperature generally runs high, sometimes to 104° F. and above, and that all convulsive phenomena cease when this condition sets in. It would seem that this might be readily explained as being due to the broken-down and exhausted condition of the cells in the brain that produce motion. An actual state of general paralysis has been established. So here we have a high temperature without the possibility of convulsive phenomena in any form.

Researches on the Temperature During Epileptic Paroxysms.—Bourneville and Lemoine's work was based upon over 500 examinations. Of these Bourneville reported sixty-four cases in 1886, but it is not just apparent when these investigations were made. In his *Recherchès sur l'epilepsie*, etc., for 1886-1887, he reports 109 cases. In the same *Recherches* for 1891 he reports 66 observations, none of which were made prior to 1888. Lemoine in 1888 reports 182 cases. The grand total is 520 cases.

As a general rule the majority of these observations follow a law and may be described as typical while a small minority are atypical. Of the first series of 64, 60 were typical; of the second series of 109, 82 were typical; of the 66 cases, 58 were typical. Lemoine, who considered the subject from a broader standpoint, found in his 182 cases only a solitary exception to his normal, or type. Lemoine assumed that certain cases were naturally anomalous in the matter of temperature, having abnormally low temperature in health; hence the anomaly in these cases is not referable to the epilepsy but to the patient himself. From Bourneville's standpoint, there would be about 92 per cent. typical and from Lemoine's point of view upwards of 99 per cent.

Method of Conducting Researches.—Bourneville divides all cases of epileptic paroxysms in a fourfold manner: (1) Isolated attacks; (2) serial attacks; (3) cases intermediate between the serial attacks and the status epilepticus; (4) the status epilepticus.

In each of these categories he has sought to determine the temperature laws. Temperature was always taken *per rectum*, and invariably at three periods: (*a*) At the moment of stertor or at the immediate ending of the convulsive attack; (*b*) fifteen minutes after the taking of the first temperature; (*c*) two hours later.

The observations of isolated attacks by both Bourneville and Lemoine are tabulated carefully, the patient's name, etc., being given, as well as the three readings as above. Cases of the status epilepticus and serial attacks are not included, because the temperature was taken under different circumstances and the readings were very different in character. These latter are few in number and must not be confounded with anomalous cases of isolated attacks.

All observations were taken with a Centigrade thermometer. It should be emphasized that the 521 cases appear to be entirely cases of *isolated attacks*. Bourneville's article published in 1886-1887 is entitled *"De la temperature dans les accès isolés d'epilepsie"* and Lemoine's article also bears the same title. It must be remembered that the temperature in serial attacks and status epilepticus was an acknowledged fact and that what the reporters sought to prove at this time was the slight but constant rise of temperature co-existing with an ordinary isolated attack of epilepsy, this being a comparatively frequent phenomenon, while the *status epilepticus* was something newly described. Bourneville, indeed, having been the first to give it a thorough description. In determining the existence of this phenomenon (status epilepticus) one of the most salient points, or characteristics, was the high temperature.

It should be noted that in Bourneville's earlier work on temperature in epilepsy the facts which were uniformly accepted by others referred rather to the high temperature of the newly-described status epilepticus than to the slight but constant rise noted in the ordinary paroxysm; and that the investigations of Bourneville and Lemoine

were undertaken (after 1886) purely to demonstrate this latter fact.

Isolated Attacks.—Bourneville's conclusions were as follows: (1) Isolated attacks of epilepsy augment the central temperature. (2) This augmentation varies from .1° up to 1.5° and even higher at times. The average rise is about .5° or .6°.

Conclusions of Lemoine in Corroboration of Bourneville.—There is an access of temperature during the seizure, which afterward declines progressively. (1) In the majority of cases the elevation is slight, varying from .1° to 1.5°. Allowing 37.5° C. as normal, the elevation may vary from 37.6° to 39° C. Average rise, .7°. (2) It is rare for 39° C. to be exceeded. Out of 182 cases only 2 were beyond this figure. (3) The initial temperature at the moment of stertor is relatively low at times, not rarely being as low as 36.4° or 36.6° C. This is not supposed to denote an initial fall, because in these cases there is a still lower declension both fifteen minutes and two hours later. The cases are explained by an abnormally low normal temperature. (4) When the attack is unusually severe with prolonged stertor, the rise of temperature is more persistent. (5) In the same patient we may find notable differences between the temperature record at different seizures. In fact, it is unusual to find the same reading. (6) That the elevation of temperature is due to the epileptic access is shown by the fall of temperature within fifteen minutes.

Anomalous Cases of Isolated Attacks.—In Bourneville's series of 64 cases, he failed to record any access of temperature in 4 cases. In his series of 109 cases, 14 showed elevation only 15 minutes after the seizure. In 13 others the results were complex—in the majority the temperature was higher after two hours than at any previous moments, while at the 15-minute period the temperature was lower than before or after. In his series of 66 cases there were 8 irregular cases when the temperature was higher at the 15-minute interval than before or after.

Lemoine, in his 182 cases, found but 1 case in which there was an exception to his law of a rise at the access followed by a fall within 15 minutes.

Serial Attacks.—In Bourneville's article published in 1891, he gives his observations on 4 cases of serial attacks, meaning by this term cases in which a number of paroxysms occurred in a single day and on successive days, with intervals of rest. In these cases he took three temperatures as follows: The first at a given time, the second twelve hours and the third eighteen hours later. Of these 4 cases there were respectively five, fifteen, twenty and nine attacks in one day. The first temperature was taken at the moment of stertor after an access. In all the cases, the initial temperature was the highest and the readings at twelve and eighteen hours were progressively lower. The initial temperature varied from 38° to 38.6° C.; the twelve-hour temperature from 37.8° to 38° C., and the eighteen-hour temperature from 37.3° to 37.8° C. It would appear, therefore, that these cases do not differ materially from ordinary isolated cases. (See Lemoine's average.)

Status Epilepticus.—This clinical phenomenon was first clearly described by Bourneville. He characterizes it as follows: (1) Attacks incessantly repeated so that they overlap one another (subintrant attacks); (2) terminate in collapse variable in degrees up to the most absolute and fatal coma; (3) may end in hemiplegia; (4) pulse and respiration always increased; (5) considerable elevation of temperature, which persists during the (brief) intervals between convulsions and increases even when the convulsions have ceased.

Bourneville gives several fatal cases in which the temperature ran up respectively to 40.8°, 42°, 42.4°, and 40.9° C. In 1892 Bourneville reported a similar case in which the temperature was taken up to death. The record shows that the temperature increased slightly each day until at death it was 40.2° C.

Intermediate Cases.—Bourneville reports two cases which he considers stand midway between ordinary serial attacks and the status epilepticus. These are given in his *Recherches sur l'epilepsie*, etc., 1891, but are not especially significant, being thoroughly unique and atypical.

Personal Observations.—My own studies of the temperature laws in epilepsy extended over fifteen months and covered 1,000 records made in 250 cases. These included all types of the disease, though in some of them, such as the so-called hystero-epilepsy, a sufficient number of observations could not be made to warrant any general deductions being drawn. In classifying the types of the disease studied, the old symptomatic designations of grand mal, petit mal, Jacksonian and psychic epilepsy were used as being more generally understood. Something will also be said about the temperature in special epileptic states, as status epilepticus and serial attacks. The data made in each case in recording the temperature included the date, name of patient, hour of seizure, character of seizure, duration of seizure. Then followed three temperature records made immediately after the fit; half an hour after the fit; one hour after the fit, except in 75 cases and in these the second record was made one hour after, and the third two hours after the fit.

The method of taking the temperature in each case was uniform and in accordance with that given by Flint.[5] "The bulb of the instrument is to be placed within the axilla and the arm of the patient folded across the chest, the perspiration having first been wiped away. The instrument should remain in this situation eight or ten minutes. . . The axilla is a much better situation in which to place the bulb of the instrument than under the tongue."

For ordinary temperature observations this latter statement may offer some ground for difference of opinion, but that the axilla is the best

[5] Principles and Practice of Medicine, 5th edition, 1881, pages 98 & 99.

and only possible uniform place in which any number of reliable temperature observations may be made in epileptics immediately after convulsions is a statement that no one familiar with the conditions will for a moment question. After a convulsion many patients are so disturbed, restless, and violent often under automatism, that it would be dangerous to place a thermometer in any other place than under the arm, where the nurse may compress the arm in such a way as to insure a reliable record and at the same time prevent the destruction of the instrument, with possible injury to the patient.

Temperature Laws in Health.—Before proceeding further with a description of the work done in making my own observations, it will be well, as an aid to comparison, to refer briefly to the temperature laws in health and to speak also of the physiological principles governing the production and regulation of heat in the human economy. It is not likely that any one will question the statement that the normal temperature of the body is from 98.4° to 98.5° F.; nor is there room for doubt concerning its diurnal variation, the rule being that it gradually increases during the day, reaching its height between five and eight o'clock in the evening, after which it begins to decline, reaching its lowest point between two and six o'clock in the morning.

Not to have taken into account this diurnal variation appears to have been an omission on the part of Bourneville and others and one that might cause some deflection in the figures obtained, since the general average elevation noted by these observers was so slight as to admit of explanation under the laws of diurnal variation. But I would not be understood as stating that such error was made. I only say that evidence is lacking to show that it was avoided. In my own observations especial pains were taken to do this by recording the exact hour of each seizure; and when we come to study the results in detail the twenty-four hours will be divided into four quarters, so that all seizures occurring during a given quarter may be compared, under equal conditions, with a like number of seizures that occurred during a different quarter.

Modes of Production of Animal Heat.—Foster[6] says: "We may indeed at once affirm that the heat of the body is generated by the oxidation, not of any particular substance, but of the tissues at large; wherever metabolism is going on, heat is being set free. In growth and repair, in the disposition of new material, in the transformation of lifeless pabulum into living tissue, heat is produced. Of all the tissues of the body, the muscles, not only from their bulk, forming as they do so large a portion of the whole frame, but also from the character of their metabolism, must be regarded as the chief sources of heat. Whenever a muscle contracts, heat is given out. When a mercury thermometer is plunged into a mass of muscle, such as the thigh of a dog, a rise of the mercury is observed upon the muscle being thrown into the violent contraction."

Dalton[7] says: "In all instances, so far as observation goes, the production of heat in living organisms is in proportion to the activity of the internal changes going on in the body. Birds and mammals in which respiration is most active have also the highest temperature. Each separate organ has a special temperature of its own, which increases or diminishes according to activity or repose; and since the muscles constitute so large a mass of the body it is easy to understand how continuous muscular exertion should after a time produce a general elevation of temperature. The temperature of the body is increased by muscular activity. It is a matter of common observation, both in man and in animals, that exertion produces an increase in bodily warmth."

Kirk[8] remarks that "As the muscles form so large a part of the body, and as their metabolism is particularly active, it is reasonable to consider the muscular as the chief heat-producing tissue."

Landois and Sterling[9] state: "The muscles form about the half the whole mass of the body, and the bones nearly the other half. In the latter oxidation does not go on actively, so that the muscles must be the great seats of heat-production, or thermogenesis, in the body. This view is supported by the fact that the blood leaving a muscle at rest contains more CO_2 than the blood in the right ventricle. Muscular exercise greatly increases the metabolism and the CO_2 excreted; but at the same time there is great increase in heat production. The muscles, therefore, are the great thermogenic tissues and they yield four-fifths of the heat in health."

As far as it is possible for us at this time to determine, is it not essential that we consider here the influence exerted by the glandular system during the periods of their greatest activity (after the ingestion of food), nor the chemical changes going on throughout all the tissues of the economy, in so far as either of them may influence heat-production irrespective of the control possessed by the nervous system over their actions, for the reason that we do not now know of any established connection between them, acting normally or otherwise, in the production of greater heat elevation as the result of an epileptic seizure; but with the muscular system it is different and so it may be with the nervous system.

In reviewing the action of the nervous system in the production and regulation of heat, Kirk ascribes its power to the influence possessed by the vasomotor system (1) in controlling the metabolism of the tissues, (2) in the power it possesses in regulating the caliber of the blood-vessels, and (3) "there is evidence," he says, "to show that there is another nervous apparatus closely comparable to that which regulates the secretion of the saliva and sweat, by means of which the degree of heat is increased or dimin-

[6] Physiology, 1881, page 580.

[7] Human Physiology, 1875, page 305.
[8] Handbook of Physiology, 1896, page 407.
[9] Human Physiology, 3rd edition, page 364.

ished in the warm-blooded animals, as the occasion requires. This apparatus probably consists of a center which may be reflexly stimulated, as, for example, by impulses from the skin and which "act through special nerves supplied to the various tissues. The position of this hypothetical center is a matter of some difference of opinion. It has been demonstrated that stimulation of different parts of the brain may, among other symptoms, produce increased metabolism of the tissues, with increased output of carbon dioxide and a raised temperature; the parts of which this may be asserted are parts of the corpus striatum and of the optic thalamus. The exact situation of the heat center, however, is at present not known with certainty."

Thermal Cortical Centers.—Eulenberg and Landois discovered an area on the cortex cerebri whose stimulation produced an undoubted effect upon the temperature and condition of the blood-vessels of the opposite extremities. This region generally embraces the area in which, at the same time, the motor centers for the flexors and rotators of the fore limb and for the muscle for the hind limb are placed. Destruction of this region causes increase of the temperature of the opposite extremities.[10]

Cerebral Centers.—Ott, Aronsohn, Sachs, Richet and others have shown that if a needle be thrust through the skull and brain so as to injure certain more deeply-seated parts, there is a rise of temperature and increased heat production for several hours. Ott gives three areas which, when so injured, cause these effects: (1) A part of the brain in the median side of the corpus striatum and near the nodus censorius; (2) a part between the corpus striatum and the optic thalamus; (3) the anterior end of the optic thalamus itself.

Ferrier[11] says: "If the nervous system has a direct influence on the excitation and nutrition of muscles and glands apart from the usually concomitant vascular changes, it would follow by implication that the nervous system must have a direct influence on the production of heat, seeing that the muscles and glands are the chief foci of heat production in the body, and that in certain cases of cerebral and spinal lesion, as well as in functional disorders of the nervous system of an undetermined nature, there may be abnormal heat production of a local character out of all proportion to mere vascular dilatation—and to such extent as, if general, would be incompatible with life, seems to be established by numerous and well-authenticated observations." Ferrier does not believe that there is a special heat center, considering it an anatomical impossibility for such a center to have afferent and efferent relations with every part of the body.

Green[12] says: "Cases of nervous injury or disease not uncommonly occur in which one cannot help suspecting either that thermo-inhibitory centers or fibers are destroyed, or that thermogenic fibers or centers are irritated. Hale White has brought a number of such interesting cases together. In a most interesting case of bullet wound of the head accompanied by fever, not otherwise explained, it was found that the motor area of the cortex corresponding to Eulenberg's and Landois' heat center in the dog had been destroyed. It has long been known that injuries and tumors of the spinal cord, along which thermal fibers must pass, are apt to cause marked fever."

It will be well for us to bear these statements of Foster, Dalton, Kirk, Landois and Sterling, and Ferrier in mind, for they will be of great value when we come to study directly the causes of increased heat dependent upon an epileptic seizure.

The following summary exhibits all the observations made in 828 seizures and does not include 172 others which were tabulated far enough only to add confirmation to the results given in specified form.

Each group was studied in order, as follows: Group I., 516 grand mal seizures; Group II., 133 petit mal seizures; Group III., 81 psychic seizures; Group IV., 50 grand mal seizures with extended observations; Group V., 25 petit mal seizures with extended observations; Group VI., 17 cases of status epilepticus; Group VII., 5 cases of serial attacks.

It is impossible here to give the details of the observations, but the following facts were brought out in these studies.

Summary of Results.

Group. I.—This group comprised 516 grand mal seizures. The average duration of all the seizures, including the stage of active convulsions only, was a fraction over 1¾ minutes, the longest being 5, the shortest ½ minute. A single fit only lasted 5 minutes with a temperature of 99.6° F. immediately after, dropping to normal 30 minutes later. In five cases the fit lasted 4 minutes; all followed by increased temperatures, ranging from 99.2° to 100.6° F. immediately after. In 10 others, in which the fit lasted ½ minute only, the temperature was increased in all from .2° to 3.5°. This fact is mentioned to show the apparent lack of value in comparison between heat elevation following seizures of long duration, as compared with those of short duration.

Taking the 516 grand mal seizures collectively, we find that 297, or 57½ per cent., show an increase in temperature ranging from .2° to 3.5° immediately after the fit. Again, taking the same group of cases, we find that 80, or 15½ per cent., show subnormal temperatures immediately after the fit, ranging from 96.4° F. in one case to from 97° to 98° F. in 31 others. As this subnormal group will not be referred to again, it may be well to state here that after careful study we have been unable to assign any cause for the low temperature in these cases, other than the causes that operate generally to produce low temperatures in other conditions, such as chronic

[10] Landois and Sterling, Human Physiology, 3rd edition page 755.
[11] Functions of the Brain, 1886, page 86.
[12] Pathology and Morbid Anatomy, 1895, page 278.

asthenic diseases of long standing, defective nutrition, idiocy, imbecility, and epileptic dementia complicated with or without para- or hemiplegic infirmities.

Turning again to the 516 grand mal seizures, it will be noted that while 297, or 57½ per cent., showed increased temperature immediately after the fit, 330, or 66 per cent., showed an increase one-half hour later, the highest temperature being 102.2° F., the lowest, 97.4° F. At the third observation, one hour after the fit, 327, or 64 per cent., gave temperature increases above the normal, ranging from .2° to 3.5°.

Group II.—The average duration of the fit in this group was $1^2/_{100}$ of a minute, the longest being 4 minutes, the shortest ¼ minute.

Immediately after the fit 80, or 60 per cent., showed increased temperatures ranging from .2° to 2.5° above normal, while a subnormal record was made in 14, or 10 per cent. of the entire number, the proportion of subnormals being less in this group by 33 per cent. than in the previous grand mal group. The same 133 cases presented at the end of half an hour increased temperatures in 94, or 70 per cent., ranging from .2° to 4.5° above normal, while at the end of one hour after the fit only 70, or 52½ per cent., still showed an increase.

Group III.—The average duration of the fit in this group was a fraction less than in the petit mals, being about one minute. Immediately after the fit 49, or 60 per cent., of them gave increased temperatures ranging from .2° to 1.8° above normal. After half an hour 56, or 69 per cent., still showed an increase; while at the end of one hour 54, or 67⅓ per cent., showed relatively the same heat elevations.

Group IV.—In these cases, 26, or 52 per cent., showed temperature increases that ran uniformly through all the record hours, that is, those showing an increase immediately after the fit showed relatively the same increase at the end of the second hour. It may also be noted that 14 cases of this group that showed low temperatures immediately after the fit showed still lower temperatures two hours later, many of them dropping from slight increases above normal to subnormal.

Group V.—In this group 13, or 52 per cent., showed increased temperatures immediately after the fit. One hour after 16, or 64 per cent., showed increase; while at the end of the second hour after the fit 17, or 68 per cent., showed relatively greater increases than were noted immediately after the fit.

None of the seizures of this group were violent or severe, none lasting more than 60 seconds, so that in looking for the cause of heat elevation in them, we feel justified in at once excluding muscular activity. In many of them the muscles did not play any more important part than that required for the fibrillary contractions of some of the muscles of expression, chiefly those about the mouth, which are so frequently seen in petit mal and psychic seizures.

It is not possible for such muscular activity to increase the temperature of the body to 100° F.; it matters not how important a factor muscular activity may be in creating heat, and in such cases it is entirely within reason for us to assume that there has been a disturbance in the central nervous system, either in the thermal cortical centers described by Landois and Sterling, or, since motion in such cases is so insignificant, in the lower heat centers in the corpus striatum and optic thalamus.

It is a well-established fact in pathology that in disease involving the highest specialized tissues of the body, recovery takes place at a much slower rate than when grosser tissue is involved. By analogy, the same thing is true here. Increased heat of the body, due to simple increase in muscular action, will more quickly pass away than when such increase is due to a deep-seated disturbance of the heat centers of the brain.

Group VI.—The fact that status epilepticus is so often accompanied by extreme heat of the body is so well known and recognized that further arguments on this line would be superfluous here; this group is presented more to make the study of the temperature laws in epilepsy as complete in this paper as possible than for any other purpose. By studying the table, it will be noted that the lowest status temperature was 102.4° F., the highest, 107.5° F. In 11 the temperature ran up to 104° F. and over; and in 9 to 105° F. and over; while 107° F. and over was reached in 2 cases.

Group VII.—The difference between the duration of the attacks in this group, as compared with the duration in the status group, and further compared as to the temperatures that followed in each, is apparent at a glance. The highest temperature following serial attacks was 105.8° F., the seizures that caused it numbering 140, covering a period of 96 hours. In none of the remaining serial attacks did the temperature go above 100.8° F.

Death occurred in 28½ per cent. of the status cases; none occurred during serial attacks.

Conclusions.

1. In his conclusions Bourneville says: "Isolated attacks of epilepsy augment the central temperature." The only logical inference we can draw from this statement is that Bourneville found the temperature increased after every isolated epileptic seizure, and nothing exists in Bourneville's work on the subject to change this opinion.

2. The results of our own observations agree in part only with those of Bourneville, the latter's work having, in our opinion, lost much of its value through failure to properly classify the types of seizures studied and to make due allowance for certain physiological differences in temperature.

3. After making due allowance for diurnal variation, we find that 40 per cent. would be the

lowest of such cases showing increased temperature after seizures, and 70 per cent. the highest, making the general grand average of cases of all types showing increased temperature after seizures 55 per cent., the difference in the results obtained by Bourneville and by us being 45 per cent. The views of such eminent physiologists as Dalton, Kirk, Foster, Landois and Sterling, relative to the part played by muscular activity in creating heat, must in view of the activity of the muscular system in certain cases of major epilepsy have great weight in determining the cause of heat production in these cases, wholly irrespective of any influence that might be exerted by the heat centers in the brain.

4. By the results of our own observations, we are led to believe that in many petit mal and psychic attacks in which muscular activity plays so small a part, and in which the temperature is often increased after seizures, such increase is due to a disturbance either of the heat center that is thought to exist in the cortex of the brain, or of the center or centers that observers believe have been located in the corpus striatum and optic thalamus.

5. We find that subnormal temperatures follow epileptic seizures in greater proportion after grand mal than after petit mal or psychic seizures, the proportion being 15 per cent. of the former to 10 per cent. of the latter types; and that, while we agree in the main with Lemoine as to the cause for such low temperatures, when he says "Certain cases are naturally anomalous in the matter of temperature, having abnormally low temperatures in health," we do not believe that this explanation is altogether sufficient, but that there will usually be found to exist in these cases some chronic disease or general asthenic condition of long standing that lowers the stamina and vitality of the individual.

6. All that has been said by Bourneville, Lemoine and others, relative to the high temperature in status epilepticus, is confirmed by the tabulated results in the 17 cases referred to in this paper.

7. The temperature in serial attacks runs uniformly higher than in isolated attacks, but not so high as in status, serial attacks occupying midway ground, as to frequency, severity, temperature elevations and mortality, between isolated seizures and status epilepticus.

8. As a possible factor in establishing the presence of toxins or other agencies in the body prior to and possibly causing the convulsion, an effort was made to take the temperature in some cases when the aura was of sufficient length, before the attack; but it was done in one case only, and in this the heat, beginning two hours before the fit, ran steadily up to 102° F., when the patient passed into convulsion.

State Medical Society.—The annual meeting of the Pennsylvania State Medical Society will be held in Philadelphia, September 24th, 25th, and 26th.

THE TREATMENT OF PUERPERAL INFECTION.

BY DAVID J. LORING, M.D.,
OF VALPARAISO, INDIANA.

PUERPERAL infection is wound infection, hence, the treatment of puerperal infection becomes essentially the treatment of wound infection. The internal administration of drugs, except when employed to relieve some physiological embarrassment, or to allay pain, is not only of no benefit, but may become positively injurious. This is true for the reason that, with our present knowledge of etiological factors and pathological conditions, it is wholly unreasonable to suppose that we can safely introduce into the general circulation any drug which would either inhibit, prevent or destroy the growth or development of micro-organisms on which we now know every case of puerperal infection depends. Moreover, the dependence on the internal administration of drugs is so delusive and may create such a feeling of security that the proper treatment is postponed until the opportunity of saving life or the prevention of chronic invalidism is past. The proper treatment therefore is surgical and should be prompt, decisive and radical from the beginning. I know of no pathological condition in which the proper surgical treatment, early and thoroughly applied, can save more lives, or prevent so much chronic invalidism as that of puerperal infection, and none the neglect of which has caused so many deaths or resulted in so much suffering for women.

The treatment of puerperal infection should be limited to mean that occurring within the first four weeks after delivery, and treatment instituted for uterine infection later than this should not be considered as having been applied for puerperal infection, notwithstanding the fact that the lesion is the result of puerperal infection. There is so much difference in the condition of the tissues at one week, with the enormously developed lymphatics and vessels, and six weeks after this has past, that the lesion is wholly different and the demand for surgical treatment therefore becomes less imperative. Infections following early abortion, during the first or second month, with but little developed lymphatics and vessels, give rise to less septicemia and partake more of the character of septic endometritis; later abortions, that of infection at full term. The line cannot be sharply drawn between those cases which are purely abortional and those purely puerperal. The dangers seem to bear a direct ratio to the period of gestation.

Before proceeding to the treatment of the infected uterus, the responsibility for the rise of temperature should be placed in this organ. Puerperal women may have a rise of temperature from general causes, and these should always be excluded before determining that the case is one of puerperal infection. Probably seventy-five out of every one hundred women, who have a rise of temperature following labor, will assume a normal condition in a few days if left alone;

[1] Read before the Indiana State Medical Society, South Bend, Ind., May 16, 1901.

but of the remaining twenty-five a few will die and the remainder will recover with permanently-damaged pelvic organs and remain chronic invalids for life, and will always have before them the dreaded thoughts of undergoing some surgical operation. We must not be content alone with attacking mortality statistics, but we must attack morbidity statistics as well. It certainly would be desirable if every physician were able to make bacteriological cultures from the inside of the uterus, and thus determine, with precision, the exact nature of the infecting agent in each individual case; but no two bacteriologists agree on the method of collecting these discharges, and they are still debating it. The fact still remains, after all, that a vast majority of the profession prefer to be governed by clinical symptoms, rather than bacteriological investigation, except when made by the most skilled; and thus, the general practitioner, into whose hands these cases usually fall must either waste valuable time in determining whether or not he has to deal with a virulent streptococcus infection or adopt that plan of treatment which will do good in all cases and harm in none; at least, any sensible physician would, although the theorist might not.

In planning the proper surgical treatment, we should always have in view (1) the limitation of the infected area to the fullest possible extent; (2) the provision of abundant drainage for ptomains and leucomains and other tissue débris, the result of microscopic invasion; and (3) the introduction of some antiseptic, such as iodine in the form of iodoform, which will render the infected field sterile in the shortest possible time.

If these cases are seen early, within the first twelve or twenty-four hours, and we have reason to believe that the infection has gone no farther than the free surface of the decidua, for at one time all infections are superficial, simple intra-uterine irrigation, with normal salt solution or boracic acid, 2 per cent., may and often will effect a cure, and in such cases should be tried with a fair prospect of success. Strong antiseptic solutions should never be used in the uterine cavity, unless the same be followed immediately by curettage. Such antiseptics as bichloride of mercury and carbolic acid are eminently efficient in the destruction of germs, but at the same time they destroy cellular elements and this will always result in sloughing. This sloughing will not only afford abundant material for the further growth of germs, but it also retards regeneration of the new mucous membrane, and should, therefore, be condemned in every instance, except in those cases in which all damaged tissue can be immediately removed by curettage. If, on the other hand, the case be seen later, and the symptoms—such as high temperature—seem to warrant the belief that the germs have penetrated deeper than the free surface of the decidua, involving the lymphatics of the uterine walls or extending to the peri-uterine lymphatics, resulting in a general pelvic lymphangitis or septic peritonitis, no time should be lost, as here intra-uterine irrigation of itself can accomplish no good; but curettage and opening of the cul-de-sac should be resorted to, and the widest possible field for drainage obtained. In this condition, intra-uterine irrigation with antiseptics may be employed, as it is always to be followed by curettage. The technic should be as follows: The vulva should be scrubbed with soap and shaved; the vagina thoroughly cleansed with prolonged douching with bichloride of mercury, 1-5,000. The patient should then be anesthetized and placed on a table in the lithotomy position, the surgeon in the meantime having thoroughly cleansed his hands with the same scrupulous care that he would if he was going to open the abdomen. All instruments and gauzes and all other material to be used having been likewise sterilized, he should proceed as follows: A medium-sized perineal retractor should be introduced into the vagina, the perineum held back, and the cervix exposed; this should be grasped with dull forceps and great care should always be exercised that this is not used in such a way as to lacerate or wound the tissue; by this means the cervix is brought forward and the uterine canal straightened. The largest size return-flow intra-uterine irrigator which will pass the cervix should then be introduced and carried to the fundus, care being taken to avoid wounding of any tissue. The uterine cavity should then be thoroughly washed out with a 1-6,000 solution of bichloride of mercury, from one to two gallons being employed. This should be immediately followed by the introduction of the largest size sharp curette that will pass the cervix and the whole uterine cavity thoroughly curetted, all remains of mucous membrane being removed. The uterine cavity should again be thoroughly irrigated with not less than one gallon of normal salt solution or a 2-per-cent. solution of boracic acid, after which it should be thoroughly mopped with dry sterilized gauze sponges and all débris removed. Hemorrhage during this process may have been quite free, but this should be ignored. After the uterine cavity has been thoroughly cleansed it should be packed with 10-per-cent. iodoform gauze. According to the size of the cervix, strips of gauze from four to ten inches wide may be selected; these should be carried well up to the fundus and the uterine cavity thoroughly packed from above downward, the ends of the strips being cut off and left hanging in the vagina. The forceps still holding the cervix, a fold of mucous membrane should be caught up, just behind the cervix, and a transverse incision about one inch in length made in it. From this time on all cutting instruments may be dispensed with. The finger, separating the tissues passing over the posterior surface of the uterus, is passed up and boldly pushed through that portion of the peritoneum forming the floor of Douglas's cul-de-sac. This will usually be followed by the escape of a considerable quantity of blood-serum; the index finger of each hand should then be introduced into the opening and the incision stretched laterally, as far as the side of the

cervix; as the hemorrhage will be slight, nothing more than torsion of forcep pressure will be required. The patient should be lowered to the Trendelenburg position, and the wound thoroughly sponged clean. A gauze sponge, with tape attached, should then be carried up through the opening under the intestines, which will have already receded from the pelvic cavity so that they will give no further trouble; one or two fingers should be introduced through the opening, carried well up behind the broad ligaments on each side, and the ovaries and tubes freed of adhesions. If pus tubes should be found, they should be opened and drained, and the widest separation of all tissue structures and lymphatic spaces should be secured.

At this point of the procedure, our manipulations should be done with a great deal of care, and we should not be content until every organ in the pelvis is freed from adhesions and is in a position to be thoroughly drained. When this has been secured, the peritoneal cavity thus opened should be thoroughly mopped dry with sterilized gauze sponges, but no irrigation should be permitted. The cleansing having been completed, the sponge introduced to hold the intestines up may be removed and the peritoneal cavity packed. This should be done by carrying up strips of 10-per-cent. iodoform gauze into the peritoneal cavity to a level with the broad ligaments—one or more strips on each side being used—and the entire cavity filled, the ends of the strips being left long and hanging out into the vagina; after which the vagina should be packed with iodoform gauze and a proper dressing applied. Should the temperature immediately become normal, the uterine packing should be removed the second day and not re-applied; but if the temperature should continue a second dressing may be necessary. The cul-de-sac packing should be left from three to five days, when it should be removed and renewed, very lightly; this should be changed from time to time until the healing is complete. The iodoform here introduced immediately undergoes disintegration in the presence of the discharges from the tissues and free iodine may be found in the urine within three hours; the infected field will nearly always become sterile within twenty-four to forty-eight hours; moreover, the infected area is limited and the most abundant drainage secured.

In cases of grave sepsis—in fact, in cases not so grave—I believe it to be always advisable to precede this operation by an intravenous transfusion of from 500 to 1,000 c.c. of normal salt solution. The subcutaneous use of salt solution may be somewhat easier to apply, but it is by no means as useful and in my opinion should not be depended upon to the exclusion of the intravenous method which I usually employ in all such cases. In the general practice of this State I believe this method of the administration of normal salt solution has not become popularized, and for this reason I will here describe the technic I usually employ. All that is required is a glass percolator with a rubber tube attached, the lower end of which is provided with a stopcock, and a small metallic cannula, of the required size to be used in a vein, fitted to the lower end of the rubber tube.

The salt solution should be prepared by boiling chemically-pure chloride of sodium in distilled water for not less than fifteen minutes. This should be cooled down to about 105° to 110° F. and should then be poured into the percolator, after it and the rubber tube have been sterilized with $^1/_{2000}$ bichloride of mercury solution and washed in sterilized water. The percolator should then be lifted three or four feet above the patient's arm, the anterior surface of which has been previously sterilized in the usual way. A rubber tubing or any other ligature should be drawn loosely around the arm above the elbow, causing the vein to stand up prominently. The medium basilic vein (or, if this is small, the basilic) should then be selected and an incision made along the side of, but not over, the vein; the skin is retracted, the vein comes prominently into view, a few touches of the scalpel liberate the vein from its loose connective tissue surrounding, and without difficulty it is elevated from its bed. A catgut ligature should be placed around the vein at the lower end of the incision and tied; a second catgut ligature should be placed around the vein at the upper end, but not tied. The cannula, which has already been sterilized by boiling, is attached to the end of the rubber tubing, the stopcock opened, and the solution freely allowed to flow; this will at once empty the tubing of any collection of air; the stopcock should then be turned off until only a slow dropping results. A transverse incision should be made into the vein and the cannula introduced while the solution is still flowing; the cannula being carried up above the level of the upper ligature, which is then tied firmly around it and the transfusion allowed to proceed.

Time will not permit me to discuss the merits or demerits of other methods of treatment, but it suffices to say that if the plan of treatment here recommended be thoroughly and conscientiously carried out, I believe that there are very few cases of puerperal infection which may not be radically and permanently cured in a very few days. The few cases that will not yield to this kind of treatment will be those in which it has been delayed until general purulent peritonitis has set in, or metastasis to some other locality has resulted; or a few cases in which some other mortal ailment —as endocarditis—is present.

I am of the opinion that this plan of treatment is somewhat different from that usually employed in this State, but I would not desire it understood that I am in any way responsible for its introduction, but believe so far as I am able to learn it is due to the labors of Dr. W. R. Pryor of New York. To those who may desire to pursue the subject beyond what I have been able to say in this paper, I would certainly recommend his admirable little book, "Treatment of Pelvic Inflam-

mations." I believe the method to be perfectly safe. It requires no elaborate outlay of surgical instruments and no special surgical skill. From this time on I shall expect it to be extensively employed and will confidently look forward to a marked reduction in the mortality from puerperal infection.

GENERALIZED VACCINIA.

BY JOHN H. HUDDLESTON, M.D.,
OF NEW YORK.

THERE have been reported from time to time during this century cases of this eruption following vaccination, and I have collected and tabulated all obtainable reports of cases so named.

It appears that the name has been applied, not to supernumerary vesicles, but to an eruption which is composed of elements which pass through the successive stages of papule, vesicle, and pustule, in the same manner as those produced at the site of inoculation, which comes on some short time after vaccination, and which is diffused more or less over the body. Supernumerary vesicles are found in a small percentage of cases near the site of the original vaccination, but they are usually attributed to inoculation of the virus at the time of vaccination or later into an unnoticed lesion of the skin.

The cause of generalized vaccinia is disputed. Certain authors claim that every case is an auto-inoculation; usually, however, auto-inoculation produces one pustule or very few pustules, and such cases are not spoken of as generalized vaccinia. When, however, the skin is eczematous, auto-inoculation may produce an almost unlimited number of pustules over the affected area and such cases are frequently reported as generalized vaccinia.

The cases tabulated number fifty, twenty-five males, fourteen females and eleven with sex not stated. The ages vary from three days to sixty-two years; twenty-five are under one year and there are six adults. Twelve were vaccinated with bovine virus, either direct from the animal or preserved, twenty with humanized virus, one with cowpox and one with horse-pox, the last two by accidental inoculation. The source of the virus in the other cases is not stated. In twenty per cent., ten cases out of fifty, the case was not vaccinated in the usual way; eight of the ten came in contact with the virus in a vaccine vesicle on another person and the tenth ate vaccine crusts given intentionally in food. This last case was reported in 1809, and I have met no record of any repetition of the experience. Chauveau, however, induced a generalized eruption of vaccinia on horses by giving virus by the mouth, by inhalations, and by subcutaneous inoculations, so that the record of this case may not be scouted without further information. Six of the nine who contracted vaccinia came in contact with it in ordinary daily association or by sleeping with a vaccinated person; one bathed in the same water that had been used by a vaccinated person, and two sucked a vaccine pustule on the arm of another. Four of the fifty were revaccinated and in them the primary vaccination had not caused an eruption; the other cases were all primaries. In four cases the eruption developed before the fifth day and in twenty-eight cases from the fifth to the eleventh day after vaccination. The rest appeared later. Rarely the eruption came out on one day, usually it appeared in successive groups for about a week. One well-accredited case continued to develop the eruption until the forty-second day.

The number of vesicles present varied with the case from three vesicles to five hundred or more, but in each of twenty-four of the cases the number was less than one hundred. In forty-six per cent., twenty-three out of the fifty cases, eczema or other skin disease was stated to be present, and when it was present it was almost invariably the seat of the greater part of the eruption and in some cases it is stated explicitly that the entire eruption was confined to the eczematous area. Seven of the fifty cases terminated fatally, usually with some complication. A closer inspection of the cases with reference to possible etiology shows that in only three is the number of vesicles reported small enough to allow auto-inoculation to be considered a factor unless an extensive area of abraded skin is present. Of cases in which there was such an eczematous area and in which the reporter considered auto-inoculation a cause, there are nine. Of the thirty-eight remaining cases there are still thirteen in which skin disease was present, though in one of these an occlusion bandage was placed over the vaccination at the time it was performed; in two others the reporter stated that from the distribution of the eruption auto-inoculation could not have been the cause, and in certain others the eruption came at a date before the vaccine vesicle was probably ready to furnish material for auto-inoculation. With these thirteen cases omitted, however, in addition to the preceding twelve, there are still twenty-five in which the eruption is not explained by any condition of the skin and in which there are too many vesicles to make auto-inoculation probable, and a diffusion of the virus by the blood- or lymph channels is apparently a necessary explanation.

That the presence of eczema or other skin disease does not in itself constitute a marked predisposition to generalized vaccinia is shown by daily experience, and especially by the experience at the Hôpital St. Louis in Paris where for several years all the dermatological cases were vaccinated and yet but one case of generalized vaccinia appeared. The diagnosis, usually easy, may be extremely difficult; in ten of the fifty cases the diagnosis was confirmed by taking lymph from a vesicle at a distance from the original vaccination and inoculating it on a child or animal or both, and finding that a typical vaccine vesicule resulted. Inoculation on a calf of the matter from a variolous lesion produces little or no effect. The mother of one of the

proved cases had varioloid while the child's eruption was flourishing; that case and two others were considered variola until proof to the contrary was produced. Differential diagnosis must be made in some cases also from varicella, pustulous syphilides, milaria (Martin), the pustular eruption of bromides (Crocker), impetigo contagiosa, and the vesicular eruption which sometimes follows vaccinia. This last ground of confusion I have not seen mentioned, but it is illustrated by the following case, for which I have to thank Dr. F. S. Fielder.

A boy, H. J., eleven months old, was vaccinated with Health Department virus and the vaccination ran a normal successful course. On the third day a few "spots" appeared on the skin; on the fifth day Dr. Fielder saw the case and noted an eruption on the face, neck, arms, legs, and trunk, especially across the lumbar region; it consisted of small discrete vesicles on a base of papular or erythematous character. The vesicles were $^1/_{16}$ to $^1/_8$ inch in diameter, high and full. There was no eruption in the mouth. On the sixth day the case was seen by several physicians in consultation, and by them it was called vaccinia; it was also seen by some diagnosticians of the Board of Health and by them was called varicella. Some of the lymph was collected on this day. On the eighth day many of the vesicles were pustules. No umbilication was seen. The lesions kept on appearing a few at a time until the twenty-second day. There were three other children in the family none of whom had had varicella, and none developed it either before or after the vaccination. Four children were inoculated with the lymph taken from the vesicles, and neither a vaccine pustule nor varicella followed. The eruption was, I think, a vesicular eruption, which exactly like a roseola or an urticaria, sometimes follows vaccination just as all three sometimes follow antitoxin or drug administration. An added reason for this conclusion is that the eruptions of the roseola type may come on in the first three days, vaccinia usually not. The resemblance may be extremely close and the final test in any case is inoculation.

No.	Reporter.	Age.	Day eruption began.	Day eruption ended.	Number of Vesicles.	Remarks.
1	Longstaff	3 mos	6	15	70	Slight eczema.
2	Martin	7 mos.	16	25	400	Slight eczema, proved by inoculation.
3	Hutchinson	3 mos.	8	10	General.	Vesicles became gangrenous.
4	Fox	4 days.	9	19	40	
5	"	7 days.	9	16	17	
6	Acland	3 mos.	14	42	28	Death 149th day.
7	Darling	17 yrs.	9	?	Several.	
8	Smith	3½ mos.	9	16	Immense number.	Eczema.
9	Dauchez	45 yrs.	7	12	150	Moist eczema, but eruption on other parts.
10	Lacour	8 mos.	7	10	30	Death 27th day, diarrhea.
11	Moulinet	62 yrs.	9	15	25	Dermatitis.
12	Guéniot	5 mos.	7	11	280	Eczema.
13	Moulinet	38 yrs.	8	?	5	"
14	Choyau	3 days.	17	17	3	Proved by inoculation.
15	Padieu	8 mos.	5	13	200	Eczema.
16	Besnier	6 mos.	3	9	13+	"
17	Longet	18 mos.	8	12	Numerous.	" death on 15th day.
18	Richard	4 yrs.	11	11	53	Proved by inoculation.
19	Etienne	4 yrs.	15	?	General.	" " "
20	Richard	8 yrs.	?	?	20	
21	Cazelas	4 yrs.	6	14	180	Fed with vaccine crusts.
22	Jeanselme	41 yrs.	11	14	500	Fungoid mycosis: proved by inoculation.
23	Rose	9 mos.	?	?	3	
24	Lereboullet	9 mos.	5	?	250	Impetigo.
25	Rendu	18 yrs.	4	5	60	
26	Hervieux	1 mo	8	?	General.	Proved by inoculation.
27	Peter	4 yrs.	?	?	"	Moist eczema.
28	Ledermann	Child.	?	?	"	"
29	Riether	7 mos.	21	26	300	Eczema; death on 31st day; enteritis.
30	Widowitz	4 mos.	5	?	Numerous.	Eczema.
31	Dardignac	21 yrs.	12	16	77	
32	Vergely	3½ yrs.	24	?	30	
33	Kalischer	16 mos.	7	?	Face+ 14+	Eczema.
34	Stokes	9 mos.	2	?	Many.	"
35	Asbry	5 days.	7	12	"	Proved by inoculation.
36	Dietter	1 yr.	14	19	Face+ 60	Death on 22d day; hydrocephalus.
37	"					
38	"	3½ yrs.	11	29	Many.	Eczema.
39	Voigt	3 yrs	17	27	?	"
40	Gaucher	9 mos.	11	21	?	"
41	Trousseau	1 mo.	9	?	General.	Death in few days.
42	Galliard	Infant.	11	?	27	Eczema.
43	Bailey	20 yrs.	5	11	60	"
44	Creyton	?	3	15	General.	Proved by inoculation.
45	Boivin	Child.	17	?	55	" " "
46	Bigabert	1¼ mos.	8	?	95	
47	"	9 mos.	12	?	General.	"
48	Monneret	17 mos.	12	?		
49	Warlomont	18 mos.	?	?	27	Proved by inoculation.
50	Lacnan	Infant.	11	?	90	
		"	5	15	25	

A MASSAGE ROLLER FOR THE APPLICATION OF HEAT OR COLD, COMBINED WITH ELECTRICITY.

BY ROBERT COLEMAN KEMP, M.D.,

OF NEW YORK;

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IN THE MEDICAL NEWS, New York, May 12, 1900, there appeared an article by me, entitled "A Metal Roller Water Tank for the Application of Heat or Cold." The instrument which is now presented is a slight modification of the one then described. On the handle of the new roller, there is a binder for the attachment of one of the poles of an electric battery. The present instrument is also more durable in construction than the old model. It is, in effect, a closed metal cylinder, about three and a half inches long and one and a third inches in diameter, revolving on axles, as demonstrated in Fig. 1. One of the axles is a hollow tube and through this the cylinder is filled with water by means of a small funnel. The axle is closed by a screw cap, furnished with a washer. It can be filled with hot or cold water, and thus applied to the patient, or it can be attached to one pole of a battery and employed in combination with electricity, or electricity can be used alone.

I have attached the roller to the negative pole of a faradic battery and the sponge to the positive pole, and secured excellent results in sciatica. On the other hand, two rollers can be employed with a single battery by attaching one to each pole, as demonstrated on a patient, see Fig. 2.

Naturally, the strength of the current in the two rollers is unequal when they are thus employed, but this can be obviated by regulating the battery so that the desired strength is secured in the roller attached to the weaker pole when

using massage with it under moderate pressure, while the pressure with the instrument attached to the stronger pole is made rather lightly. With the assistance of the patient and by the above method the result desired can be readily obtained.

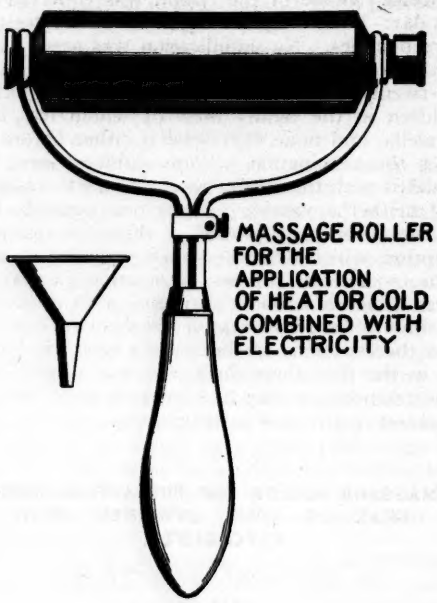

Fig. 1.

This instrument will be found to be of considerable value as an adjunct in the treatment of many conditions. In some cases heat or cold may alone be employed; in others electricity may be combined with them.

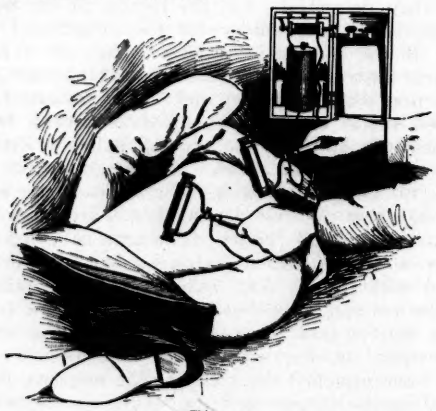

Fig. 2.

The general indications may be mentioned in brief: Alternating heat and cold, combined with electricity, can be applied to the spine, as for neurasthenic conditions, etc. A similar application could be made to the abdomen for chronic constipation. Fig. 2 demonstrates the method of attachment of the rollers. Cold can be employed for headache, heat for sciatica, muscular rheumatism (as stiff neck), lumbago, neuritis, intercostal neuralgia, rheumatic joints, etc. Hot massage for counterirritation may be applied over the kidneys in acute congestion and for oliguria. Electricity combined with heat has proved of even more value in these conditions, the roller being applied over the lumbar region of the cord, as well as over the kidneys. The faradic battery is connected with the instrument. This may seem a novel procedure, but clinically this method has been found to be a valuable adjunct in promoting diuresis. The addition of electricity seems to increase markedly the counterirritation and reflex stimulation, produced by the heat.

The hot roller can also be employed over the thorax in acute bronchitis, etc., as a counterirritant. If it is desired to use moist heat, the part can be covered with thin flannel wrung out in boiling water and the roller then applied over this.

To employ dry heat the best effects produced are by lightly skimming the surface with the instrument. It may be passed over a thin linen handkerchief, if the patient be especially sensitive.

The roller filled with boiling water is of considerable value for the purpose of inunction. Ointments made of lanolin can thus readily be rubbed in, as mercurial ointment in syphilis, or ichthyol ointment in rheumatism, etc. To avoid damage to the instrument it should be lubricated with olive oil which does not readily amalgamate with the ointment. It can be readily cleansed in boiling water.[1]

A CONSIDERATION OF HEMORRHOIDS.[2]

BY JOHN TURNER, JR., M.D.,

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THE rectum in the male is in relation in front with the trigone of the bladder, the seminal vesicles and the prostate gland, and in the female with the vagina and cervix uteri. The lower three or four inches of the rectum is uncovered by peritoneum. It is freely supplied by blood-vessels; the superior hemorrhoidal being the chief branch of supply, and the inferior and middle hemorrhoidal arteries completing the blood supply of the anal orifice, sphincter and skin about the anus. The communication between the two superior hemorrhoidal vessels is free, but they do not anastomose with the middle and inferior hemorrhoidal. The superior hemorrhoidal vessel passes down in the meso-rectum, and divides into two branches, each of which forms a loop on the side of the bowel about five inches above the anus. From these loops a number of vessels are given off which pierce the muscular

[1] The massage roller, with or without the binder for battery attachment, can be secured at the instrument store of James Dougherty, 409-411 West 59th. Street, New York.

[2] Read before Medical and Chirurgical Faculty.

coat and run down immediately beneath the mucous membrane to the anus. The veins have much the same anatomical arrangement as the arteries.

On each side of the rectum is a fossa called the ischiorectal fossa. It is two inches deep, pyramidal in shape and filled with fatty tissue. There are very few blood-vessels in this fossa, yet it is the common seat of abscesses and fistulæ.

The rectum begins at the left sacroiliac symphysis and ends at the anus. It is eight inches long. Some books describe the rectum as beginning opposite the third sacral vertebra, thus, allowing it no mesorectum. Frequently, the rectum is much dilated just above the anus. Large accumulations of waste products in the lower rectum have led to queer diagnoses. For our present purpose of describing hemorrhoids the mucous membrane and veins are the principal factors of cause and effect. The walls of the rectum differ from the rest of the larger bowel in presenting perfectly smooth walls marked by no sacculi, by no longitudinal muscular bands, and by no fatty appendices. The mucous membrane of the rectum is thicker than that of the rest of the large intestine. Certain folds, chiefly longitudinal in direction, are seen in a lax state of the tube; these disappear when it is distended. There are three oblique semilunar folds, which project into the lumen of the tube; one in front by the prostate gland and two others higher up; the latter are to the right, the former to the left. These folds when packed full of hard fecal matter are apt to sag and press too heavily upon the venous trunks, thereby making possible a pile by retarding the return flow of venous blood through these proper venous gutters or drainers of the rectum.

Congenital malformation of the rectum are not infrequently found, which have considerable to do with the presence or absence of piles. A rectum may be imperforate; or it may open into the bladder, or. more rarely still, it may open into the vagina. Sometimes the anal orifice, though present, is so small as to admit only a fine probe.

Hemorrhoids or piles may be defined as small tumors, composed chiefly of dilated veins of the rectum, surrounded by infiltrated connective tissue. It is one of the most ancient diseases known to the profession. The fifth book of the Bible has classed among the incurable diseases "emerods," itch, etc. In these olden times, the presence of piles barred a Catholic from becoming a priest. Piles are divided into internal and external. If internal, or red, they are covered with mucous membrane and are apt to be bleeding piles; if external, or bluish, they are covered with integument or skin, and are apt to be non-bleeding or blind piles.

Etiology.—Biologists find no condition similar to piles in the lower animals, and Darwin held that there appeared to be a natural deficiency in the anatomical structure of the rectum in man. Not so in the lower animals. This, then, leads us to ask, Was man primarily intended to move around on all-fours? However, as we do assume the erect position and, because of the fact that the rectal and portal veins are entirely destitute of valves, simple gravity may be one great cause of hemorrhoids. Anatomically, the superior hemorrhoidal veins in their upward course pass through little slits or openings in the muscular wall and at these constricted places compression is made, thus obstructing (to a certain degree) the free flow of venous blood. This obstruction causes the vein to dilate and consequently varices are formed. Heredity influences their formation as it does that of varicose veins elsewhere in the body. Operations about the liver, where the contracting scar-tissue presses upon the portal vein at the transverse fissure may cause piles. Pregnancy predisposes to piles; so also does overeating, overdrinking, constipation, enlarged prostate glands, enlarged ovaries, congestion of the liver and irregular meals; especially should we remember constipation, which is most frequently the exciting cause. They occur most commonly in middle life—rarely before puberty.

External piles are those little grape-like venous pouches, filled with clot and covered with integument, found at the margin of the anus. They burn, pain, pulsate, irritate and give general discomfort to the patient, especially during and after stool. The diagnosis is easy and the prognosis is good, if operated on early, and if acute in character, usually good, if the bowel is freely opened and kept in that state.

Treatment.—Palliative treatment means little toward curing the patient. In some cases, operative treatment is refused, and then we have to resort to palliative treatment. First, overcome the constipation; this is easily done by the use of confection of senna and sulphur (washed), compound liquorice powder; cascara, or other laxative. Avoid tobacco, wines, whisky, beer, and highly-seasoned food. When there is pain, relief is frequently found in an application of equal parts of extract of belladonna and opium, or belladonna and glycerin to the tumor, and then a hot fomentation should be applied. Leeches applied to the congested part often do good when severe inflammation exists. Sponging the parts with hot water and injecting cold water in the rectum three times a day greatly relieve the patient's discomfort.

Operative Treatment.—For venous piles, immediate relief may be obtained by incising the tumor and turning out the contained clot, and then dusting the parts with iodoform. Before making the incision, the part should be painted over with an 8-per-cent. solution of cocaine. A small piece of cotton should be placed between the lips of the wound if the pile be large, then keep the patient in bed for two or three days. For the cutaneous pile there is no remedy so efficacious as excision; do this even when the tumor is inflamed and edematous, for there is no bleeding which cannot be controlled easily by pressure. Some advise excision by dissection and afterward sewing up the skin. If the ulcer does not

rapidly granulate, stimulate it by applying balsam of Peru or sulphate of copper. Confine the bowels for a day or two and keep the patient in bed. The wound should be dusted with iodoform. Too free incision into the anus may result in a stricture; therefore, due care should be taken not to go deep when excising. Injection of carbolic acid in the pile is, we think, very bad surgery; the tumor thus disappears—by sloughing and destruction of its tissues—an extremely slow process. These injections sometimes cause severe hemorrhages, pyemia, and dangerous rectal strictures. It is rarely curative and is always extremely painful. Dr. Andrews of Chicago reported thirteen deaths from this treatment. The leading proctologists of this country have abandoned its use. Cocaine is most frequently applied as an anesthetic in these cases. Inject well around and over the pile and you may cut deeply and often without any pain to your patient, provided you inject into the skin and not under the skin—a mistake frequently made. The sac after excision should be swabbed out with equal parts of carbolic acid and glycerin; then dust with iodoform or boric acid and a small pledget of absorbent cotton, or iodoform gauze packed in the incision, and over all should be placed a cotton dressing held firmly in place by a bandage. Antiseptic precautions should be observed throughout the whole treatment. A good rule is always to administer a saline purge, preceding the operation, and to irrigate the colon with a normal salt solution just before operating on the patient. The after-treatment consists in keeping the parts perfectly clean and in frequently changing the absorbent dressing.

Internal piles are ordinarily divided into venous, columnar and nevoid. The venous hemorrhoid resembles the external, except that it is covered with mucous membrane rather than skin, and it bleeds easily, especially during defecation. We find this variety most frequently in drinking men and in multiparæ. The columnar hemorrhoid is quite common and is the hypertrophy of the folds of mucous membrane surrounding the anal opening, or the pillars of Glisson. They are red, elongated, and contain a parallel branch of the superior hemorrhoidal artery, hence their redness. The nevoid or capillary hemorrhoid is a small, bright red tumor having a spongy, granular appearance and is found high up the rectum. They bleed on slight provocation and often drain the system heavily. They closely resemble nevoid growths elsewhere. One of the first symptoms is frequent and sometimes constant bleeding, especially increased, however, during defecation. At the beginning the patient loses blood only at stool; later it may occur at any time, resulting in exhaustion and anemia.

I have now a patient under my care, who has to be carefully watched when at stool, for fear he may fall over in a fainting condition and injure himself. The flow of blood is profuse on some occasions. When this is the case, he becomes pallied and unusually nervous.

These piles may protrude and thereby cause a prolapsed rectum. With some the pile tumor may remain protruded so long that they become strangulated, having been caught by the sphincter; or they may inflame and become so congested that their great size prevents their return. The pain in these cases is excessively great. They may become gangrenous, and thus cure themselves by sloughing. These cures are, casually speaking, incomplete. In some rare cases of internal piles urinary disturbances and retention of urine may result from the anal irritation. If there is excessive pain during and after stool you will usually on close examination find a fissure *in ano*.

In arriving at a diagnosis of hemorrhoids, we must sometimes consider polypi, prolapsus ani, malignant growths, such as cancer, venereal warts, and villous tumors; also hemorrhages, pruritus ani and impacted feces may mislead us in our diagnosis. A careful inspection and examination will ordinarily settle the question. The prognosis is good if radical treatment is permitted by the patient. Many think they cannot be cured, and that they must of necessity endure them silently to the grave.

Two or three thousand years ago the itch, the botch, the scab and the rectal tumors (piles) were considered incurable by the Egyptians, who were then skilled physicians. At that time a man with hemorrhoids (and without any idea of antisepsis) was almost isolated. As we isolate cases of hospital gangrene to-day (if such happen to occur) so did they isolate cases of hemorrhoids. They dreaded piles as we dread smallpox.

Treatment.—In mild forms and during the early stage, palliative treatment is successful, but in severe cases, especially when there is much bleeding, nothing but a radical operation will give permanent relief. Avoid constipation; regulate the bowels with compound licorice powder, confection of serra and sulphur, or aloes and belladonna pills, with an enema in the morning. The patient should wash and grease the protruded piles after defecation and then carefully replace them by gentle pressure. The use of some astringent, such as nutgall ointment, will give relief. Regular exercise is necessary. Overeating is injurious, and drinking should be given up absolutely.

Operative Treatment.—The only curative procedure for piles is operative. The two chief methods of radical cure are ligature and the clamp and the thermocautery. Before operating, the patient should be prepared by the administration of a strong purgative the evening previous and immediately before the operation the rectum should be well washed out with two or three soap-and-water enemata. After giving the anesthetic, the sphincter should be stretched by the use of both thumbs till the tension of the muscle gives way. Then one can easily explore the whole diseased area; the pain, after operating is also greatly lessened by this simple procedure. The surgeon, moreover, is not deceived by

"blind" hemorrhage, that is, blood held out of sight of the examiner by the spasmodically contracted sphincter. This overstretching of the anus is a panacea for all nervous diseases, according to some writers. Place the patient during the procedure in the lithotomy position, keeping the knees well apart by Clover's crutch or other means. Each tumor should be seized with small volsellum forceps, drawn down and separated from the subcutaneous and muscular tissue from below with scissors. As the vessels enter the pile from above, there is no danger in separating the lower end of the tumor. The pedicle or stalk should now be tied closely with a strong silk ligature; make sure of the knot holding by employing three half hitches, instead of the usual two. Cut the ligature off short, also the tumor beyond the ligature, enough tissue being left to prevent the knot from slipping. I sometimes pierce the pedicle with a needle and tie in two halves, the superfluous portion being cut off. The ligature has been used for thousands of years—since the time of Hippocrates. The most noted rectal surgeons of the world have employed the ligature for hemorrhoids. Sometimes leeches are used to allay distress before operating.

In using the clamp and cautery the patient is prepared as before, the pile is seized by volsellum forceps, brought down, and clamped tightly with one of the numerous clamps, such as Smith's, Lee's, etc. The pile should then be cut off short about an eighth of an inch in front of the clamp, and the cut surface slowly cauterized several times with a cautery heated to a dull-red-heat. The clamp should then be slightly relaxed and if there is any bleeding, the pile-stump should be again cauterized. Some do not use the scissors in cutting the tumor off, preferring to trim it off with the hot iron.

After either of the operations just described, the parts should be washed thoroughly with an antiseptic solution, dusted with iodoform, and a morphine suppository introduced. Absorbent cotton should also be placed over the perineum and kept there by a T-bandage. One grain of opium should be given twice daily to confine the bowels for three days. Pain may be controlled by the same means. On the third day give the patient a dose of castor oil and keep the bowel well open daily thereafter. If there is difficulty in urination after operation for hemorrhoids, fomentation should be applied over the lower part of the abdomen and the patient asked to make a great effort to urinate. For a few days sometimes a catheter must be used to empty the bladder.

Many operations have been devised to cure these troubles, crushing, injecting carbolic acid, ignipuncture, etc. Dr. Whitehead of Leeds, Eng., has extensively practised and advocated excision of the pile, that is, taking the whole anus from the skin around the anus up to healthy mucous membranes above the pile, cutting it entirely away, and bringing the above circular cut surface down and stitching it to the anal orifice. The great objection to this operative procedure is that it is extremely tedious and bloody, and it may cause anal stricture—a most unpleasant result, which has been called by a famous surgeon (Hall of Edinburgh) the "stigma of a surgeon's art."

AUTOTOXEMIA.

BY WILLIAM W. PENNELL, M.D.,
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AUTOTOXEMIA is a condition of the bodily health modified by the absorption of harmful substances from the intestinal or genito-urinary tracts into the blood; poisonous substances originating within the body as the result of either defective metabolism and elimination or fermentative and putrefactive processes, or both, and producing well-defined symptoms.

It is not intended to insinuate that the body is a laboratory from which issue many poisons, nor that it is necessary that all the forces of the body be kept busy, normally, to prevent systemic catastrophes; but it is believed that the natural forces of the body are able to cope with the ordinary influences within and without itself, and that so long as these conditions exist there is good health.

Putting aside every harmful agency not autogenetic, the resisting powers of the body may become weakened by continued assaults from certain materials originating within itself, and, by entering the circulation, doing mischief in distant organs. Often such cases may be seen in the teething of children. Some contend that the results of dentition are simply reflex phenomena through the nervous system, but in my experience the absorption of materials occurring in not a few children increases the amount of solids in the blood which are faultily eliminated and this is the cause of the "reflex" symptoms, such as fever and nervous disturbances which are but the efforts of Nature seeking escape from its tormentors.

Again, we see these symptoms in the child with cholera infantum or in the adult with cholera morbus. The fermentative changes in milk fed to children explain the many infections of the intestinal canal and, because of the various bacterial forms that swarm in such an inviting medium, should warn us to withhold it as long as the alvine discharges are offensive. The names cholera infantum and cholera morbus might easily be eliminated from the nosological lists and names more in harmony with the cause substituted. The use of purgatives, eliminants and antiseptics in perhaps more than usually favorable cases, enables me to say that in twenty-five years I have not had a fatal result in cholera infantum. Not infrequently we see autotoxemia following in the wake of deficient menstruation—foul-smelling discharges, nervousness, coldness of feet and hands, and burning of feet with constipation. In

[1] Read before the Ohio State Medical Society, Cincinnati, May 10, 1901.

such condition good drainage, eliminatives, and support bring about equilibrium of the body.

The manner in which these disturbing influences are evolved is not well understood; but that there is a production of substances in the tissues or in the intestinal tract due to imperfect combustion or to bacterial influence, a few of which are known but many unknown, some of which are highly poisonous, is well recognized.

Many of the end-products of metabolism are poison, and they must either be decomposed or be speedily discharged or their accumulation occasions illness.

The possibility of convulsions and death from autotoxemia, as a medico-legal question, should not be overlooked. It has been my misfortune to witness death from ptomain-poisoning of autogenetic origin in patients whose kidneys were deficient in eliminating power. The constant elimination of intestinal toxins through the urine must in time result in diseased kidneys from the irritation that is engendered, and later on the production of toxemia. Hence, putrefactive and fermentative processes in the bowels, in a subject having imperfect kidneys, are liable to be followed by dangerous symptoms, if the effect of diuretics cannot be obtained.

Unquenched thirst or abstemiousness in the matter of water-drinking will cause the system to drink at whatever fountain is nearest. This in most individuals is the intestinal tract. Under this head it is fair to mention that the accumulation of ingesta in dilatation of the stomach, with its accompanying fermentation and production of a number of acids and gases, may lead to endosmosis of fluids into that viscus. This is a condition opposite to that which obtains in constipation, if we except the periods when Nature sets up a diarrhea to purge herself of intestinal accumulations. Ask your constipated, sallow-faced, pessimistic patient with the odorous breath how much water he drinks and he will tell you he rarely drinks any. He is an object of commiseration. He is a sort of compound engine, using the same fluid twice before its final release. The materials in his jejunum and ilium are liquid and semi-liquid as in the ordinary, well-ordered individual, but down in the colon a gradual withdrawal of the fluids begins and continues until little more than the solids remain. Is it any wonder he has headache, is morbid, has backache, with tender points on each side of the spine, which he imagines originates in his kidneys; and he is more than half right, for those organs are overworked to held keep the body clear of harmful materials. This man takes cold easily, dreads impotence, has palpitation of the heart and gastric distress. He is bilious, having attacks of vertigo; has a muddy skin, and, above all, has a breath like the emanations from a vault. In the female in addition to these symptoms, we find leucorrhea and quite often irregular and suppressed menstruation. And, if either has a phthisical tendency, the toxemic condition increases the asthmatic attacks,and both are, for the same reason, liable to diseases of the skin.

It is well known that dyspeptic, constipated persons are subject to a troublesome erythema as a result of intestinal infection. I remember a boy with an obstinate constipation whose erythema presented the appearance of scarlatina, and a woman whose erythema resembled erysipelas more than anything else, yet intestinal treatment readily dispersed the ailments. It is when this annoying skin affection is accompanied with fever that its nature is more perplexing, because neither the stomach nor the bowels present any warning note. A key to the situation is often found in the occurrence of an urticaria which is more frequently neurotic, just as acne and pruritus are toxic rather than gastric. But the most distressing skin affection from intestinal absorption is erythema. This symptom is usually symmetrical in distribution and may present a vesicular character; the urine is scanty, of high specific gravity and contains indican and ethereal sulphates. Its successful treatment requires adequate eliminatives and intestinal antiseptics.

The habit of spirit-drinking not only produces intoxication, but is also the cause of many autotoxemias. It matters not whether wine or other liquors are used in moderation or in excess, the symptoms of toxemia are sure to follow. They express themselves in obscure pains, weakness, inability to sustain continued effort, dyspepsia, diminished physical resistance, and often obesity, all of which are as often ascribed to other causes. These patients suffer from neuralgia—a pungent reproach of the nervous system—which the sufferers call "rheumatism," or are the victims of mysterious chills which are explained away under the term "malaria." In these matters abstinence works the cure which is frequently ascribed to other agencies.

Lithemia or modified gout belongs to this category of maladies. Owing to defective metabolism of the nitrogenous substances the blood becomes charged with morbid materials, principally of the uric-acid group. Remembering that uric acid decomposition is the main source of urea, and that urea is an end-product of proteid metabolism, it is easy to see that when this decomposition fails to ensue the uric acid accumulates in the blood, producing digestive and nervous disturbances—a uricemia— and only differs from true gout in the absence of local symptoms and deposit of urates about the small joints. The effect of this accumulation of uric acid upon the gastro-intestinal functions, upon the urinary secretion and upon the nervous system need not be mistaken, but ought to be typical of other toxic states of the body due to other metabolic defects or to fermentative and putrefactive changes in the alimentary canal. So pronounced are the features of this disease that they are often mistaken for separate difficulties. The dyspepsia, the gastralgia, the lumbar pains, the insomnia, neuralgia, sluggish circula-

tion and mental hebetude might easily be treated for long periods as distinct disorders, but when the lithemic state is observed no easier or more brilliant cures are made.

The time was when biliousness and hepatic torpor were regarded as diminished secretion of the liver. For the most part they are now looked upon as autotoxemias. Some writers maintain that the liver and intestinal wall protect the body against the forces that are evolved by fermentation and putrefaction in the intestines from bacterial action; and no doubt they do for long periods in given individuals. Patients we all have had in whom these processes went on from year to year without producing much inconvenience. But there comes a time when the antiseptic power of the liver and the resistance of the intestinal walls become insufficient or exhausted and the hurtful materials leap across the barriers in increasing numbers, and either find their way into the blood or act reflexly by irritating the nerve-endings in the intestines. The liver as a "detoxicator" is supposed to stand guard over the intestinal tube, discharging its duties by storing, destroying or excreting poisons. No doubt this is, for the most part, true. The very fact that the bile is the natural intestinal antiseptic leads us to the conclusion; but bile readily decomposes when exposed to the air, hence the necessity of keeping the liver healthy in order that its bile may possess its protective power in the highest degree.

Well-marked instances of autotoxemia are to be seen in those states in which jaundice is a prominent symptom. The highly-offensive condition of the feces shows that the antiseptic power of the bile has been withdrawn, the slow pulse, the chills and feverishness being the result of toxins from the bowels and not from the advent of bile into the blood. Likewise, certain states of the bowels supervene when the discharges are very offensive, when it is evident the bile is not sufficient in antiseptic or germicidal power to cope with the forces it is supposed to overcome. These states occur in those individuals who tax the protective cordons of the body to the uttermost. They eat more than they need—more than can be assimilated—and the surplus furnishes the conditions favorable to the resulting toxemia.

The theory of antitoxin is a beautiful one to contemplate, yet its sphere of action is hedged about with conditions. If a person were to continue imbibing poisons or produced toxins continuously, and we had to persist in the use of antidotes and antitoxins, I fear health and immunity would not ensue. Possibly the occurrence of autotoxemia in the lower animals is altogether unknown, especially when they are permitted to choose their own food and surroundings, but in man who has cultivated appetites for dishes that appeal to the taste and sensation alone, where satisfaction solely is sought in gormandizing or in the consumption of large quantities of unnecessary foods and beverages, and these are coupled with late hours or inadequate exercise and perhaps needless exposure, the liver as a detoxicator and the intestines as impregnable walls become physically disabled and perform remissly their sentinel duties.

The treatment of these conditions is foreshadowed in the references to them. Some of the medical brethren I have seen decry the benefits of intestinal antiseptics where plainly demanded and believe they are not practicable. Yet, I have known these same brethren to administer drugs with one purpose in view, and the remedies would bring about results in a far different manner than was calculated, unconsciously to the administrator. Let me refer you to an article which we most all use, but not for its antitoxic virtues as applied to the bowels. However, our intentions do not hinder it exerting its influence in the direction where it is not sent. I refer to the use of creosote in tuberculous patients and the antibacterial effect of this drug in the bowels of such patients whereby numbers of intestinal bacteria which swarm there are prevented from infecting the body and accelerating the general decline, the appetite is increased, digestion is promoted, and nutrition receives a new impetus. This seems to be the sole action of creosote in tuberculosis. There are other remedies that correct morbid processes through avenues which differ from our ideas concerning their action. Water, calomel, resorcin, salol, betanaphtol, sulphate of magnesia, and colonic flushing are agents at our comand to cleanse the body of highly prejudicial materials and also to give renewed vigor.

MEDICAL PROGRESS.

Dysentery in the Philippines.—Dysentery, as seen here, appears as two distinct diseases, writes M. H. BOWMAN (*N. Y. Med. Jour.*, Aug. 17, 1901). Acute dysentery is caused by Shiga's bacillus and does not produce abscess of the liver or ulceration of the colon. Its fatal result is due to inflammation of the bowel, rapid elimination of the watery fluids of the body, toxemia and exhaustion, and it requires from four to twelve days for its termination or crisis. Amebic dysentery is undoubtedly produced by amebæ, but there is also a non-pathogenic ameba which lives in the colon. The dysenteric ameba invades all three layers of the colon, makes punched-out ulcers or ulcers with undermined edges, and may produce liver abscess. It is somewhat larger than the other ameba. This chronic dysentery may show itself as an alternating diarrhea and constipation, without, for a long time, any marked constitutional symptoms. During the periods of constipation there is likely to be jaundice. When digestive disturbances supervene, the patient fails rapidly. The acute dysentery due to the bacillus of Shiga seems unaffected by medicines, and the treatment is supportive until the disease has run its course. Hypodermoclysis and rectal enemata of mild astringents and sedatives are of value. In amebic dysentery, magnesium sulphate is not indicated, but quinine solution effectually destroys

the amebæ. The employment of quinine in rapid, acute, ulcerating cases, however, is fraught with danger, and from the nature of such lesions it cannot be retained long enough to produce beneficial effects.

Adiposis Dolorosa.—This affection, characterized by a more or less widespread but irregular subcutaneous deposit of fat, accompanied by pain, and having no discoverable relation to any coexisting morbid condition, has scarcely been described except as occurring in women. C. FÉRÉ (*Rev. de Méd.*, Aug. 10, 1901) shows that it may occur in men. The condition may complicate muscular asthenia, mental disease, hematemesis, epistaxis. Death may result from pulmonary complications. The deposit of fat may not be accompanied by pain in the beginning; one may follow the other. Probably most of the so-called complicating symptoms are only accidentally associated. Two of Féré's patients were hysterical; two others gave a history of neurasthenia.

Agglutinine and Protective Bodies of the Serum.—It is well known that the views of various observers differ in regard to this subject. Some hold that agglutination is simply a reaction of immunity while others deny the identity of the protective and agglutinating substances. The question can only be settled by parallel researches with respect to these substances as they develop in the body and as they are affected by different conditions. ALDO CASTELLANI (*Ztschrift f. Hygiene u. Inf.*, July 31, 1901) has recently investigated this subject, working with the typhoid and colon bacilli and micro-organism of dysentery. He studies the subject from all points of view. Agglutinating and protective substances behave themselves in a like manner when submitted to various chemical and physical influences. There exists a parallelism between the development of these substances in the living body. In immunized animals at first the serum is richer in agglutinine than is the spleen while the latter contains more protective substances. The blood serum gains these substances at the same time, but loses the agglutinines sooner than the protectives. The serum of an animal immunized against a given micro-organism may possess a strong agglutinating power for another micro-organism without being able to produce an immunity against such. Animals inoculated with a given organism may develop agglutinine in their serum without forming at the same time protective bodies. These results force us to abandon the view that agglutination and immunity are closely related processes.

Enuresis in Children.—Assuming that hysteria in children manifests itself as a rule in monosymptomatic form, M. THIEMICH (*Berl. klin. Woch.*, Aug. 5, 1901) proceeds to discuss the relation between enuresis in children and hysteria. Most children suffering from enuresis, according to this writer, are the offspring of neuropathic parents. The spontaneous disappearance of enuresis or its cure by treatment is often followed by the appearance of other disturbances of a recognized hysterical character. Epidemics of enuresis have been observed in schools and asylums; in these cases, due to imitation, isolation suffices to bring about a cure. In the treatment of enuresis by faradism it is immaterial whether the painful current is applied over the sphincter vesicæ or any other part of the body, provided the child be made to understand that even stronger currents will be used if further treatment be necessary. Subcutaneous injections of strychnine owe their occasional success in the treatment of enuresis not to the drug, but to the suggestive value of its painful administration. As in hysteria, so in enuresis, each unsuccessful therapeutical measure in a given case lessens the value of future attempts at treatment.

Tuberculosis-like Bacilli in Human Feces.—Organisms whose morphology and staining reactions are identical with those of the bacillus tuberculosis have been found by different observers in various locations; thus they have been observed in butter, milk, grass and the feces of a number of animals. Very recently they have been found in human feces by THEODOR MIRONESCU (*Ztschrift. f. Hygiene u. Inf.*, July 31, 1901). He found them in the stools of a typhoid patient. They retained the Ziehl-Neelsen stain and occurred singly and in small group. They were somewhat longer and thicker than the bacillus tuberculosis. Some stained evenly, but others were beaded so that it was quite difficult to differentiate them from that organism. They grew abundantly upon ordinary culture media, developing on gelatin or agar plates in four or five days in the form of white, round, dry colonies. With respect to the staining reaction they retain their color after five minutes immersion in 33-per-cent. sulphuric acid, but on treating with 70-per-cent. alcohol most of the bacilli become decolorized. They are alkali producers. Protracted artificial cultivation deprives them of their tuberculous-like staining properties, but these are quickly regained upon passage through an animal. They are pathogenic for guinea-pigs, by intraperitoneal inoculation, in three to four weeks. This organism is not to be regarded as in any way related to the bacillus tuberculosis.

Action of Urotropin.—According to Nicolaier, the action of urotropin as a urinary antiseptic depends on the freeing of formaldehyde at the body temperature. A. GÖTZL and G. SALUS (*Prager med Woch.*, Aug. 1, 1901) contend that the antiseptic efficiency of urotopin cannot be so accounted for. In a series of experiments they ascertained that at a temperature of 17° C. a 5-per-cent. solution of urotropin will kill the microbe of ammoniacal cystitis, the bacillus coli and bacillus of typhoid. At 37° C. a ½-per-cent. solution will delay fermentation in an exposed urine as well as a 3-per-cent. solution at 17° C. The presence of albumin is immaterial. The power of urotropin to dissolve uric-acid concretions was shown in two experiments *in vitro*. On the internal administration of urotropin in 7-grain doses t.i.d., the freshly discharged urine often

gave no formaldehyde reaction with Jorissen's reagent; intense urotropin reactions were obtained always. The reaction of the urine did not materially affect the therapeutic results obtained.

Actinomycosis.—The somewhat rare occurrence of this disease renders opportunities for research in it doubly valuable. Since the primary investigations of Israel, Bollinger, Harz and Bostroem, most clinicians have regarded the bacteriology of this disease as established. The differences in the morphology of the organisms found by these observers have been very generally ascribed to pleomorphism. The latest researches in this disease come from W. SILBERSCHMIDT (*Ztschrift. f. Hygiene u. Inf.*, July 31, 1901) His results authorize different opinions from those formerly held. He examined bacteriologically seven cases in man and two in swine. Of the human cases one was not diagnosed during life; in three the disease was limited to the lower lacrimal duct; in three the disease ran a typical clinical course. The histories of these patients was carefully recorded and diligently compared with the results of the bacteriological examinations. The streptothrices isolated were inoculated into guinea-pigs and other ordinary research animals and were, as a rule, very little if at all pathogenic for them. He believes that the earlier ideas which hold that a certain streptothrix is specific for actinomycosis are incorrect. A number of different organisms are able to produce the typical clinical picture. It is not always possible to examine the nodules of the excretion microscopically, but even when this can be done the demonstration of microorganisms in them does not establish a diagnosis. Culture methods are necessary and when thus submitted the nodules are found to contain different streptothrices. The production of a pure culture of these is not so difficult as has been held. Aerobic and anaerobic agar and bouillon cultures are sufficient to accomplish this result. Mixed infections are not the rule in human actinomycosis. With our present knowledge it is not possible to differentiate bacteriologically actinomycosis from pseudo-actinomycosis. The greatest number of the organisms found in this disease belong to the streptothrix class, but it is not possible morphologically or biologically to subdivide this class at the present time.

Gold-Beater's Skin Court Plaster as a Dressing for Operative Wounds.—This plaster is composed of isinglass impregnated with a sufficient quantity of salicylic acid to render it aseptic. By a new method the plaster is boiled in cumol for one hour at a temperature of 315° F. E. A. DAY (*Amer. Gyn. and Obstet. Jour.*, Aug., 1901) recommends it because it is aseptic, antiseptic, and impervious to germs; it is then, pliable, transparent, fibrous and adherent; it forms a light dressing, readily removed by the application of moisture. This material can be used when it is desired to approximate the skin surfaces of wounds without sutures.

Nasal Suppuration; Its Causes and Differential Diagnosis.—Up to a dozen years ago little had been done and less written on this subject. To-day at least the foundations of accurate knowledge have been laid. S. HORACE LAW (*Dublin Jour. Med. Sc.*, Aug., 1901) divides the subject into two parts—one, suppurative affections of the accessory sinuses; the other, all other conditions which may produce a discharge from the nostrils or nasopharynx. In children foreign bodies often are the cause of a fetid discharge from one nostril; such bodies may form the nucleus of rhinoliths. Diagnosis depends on the history, unilateral discharge, and on touching the foreign body with a probe or seeing it. Excluding polypi, the only tumors which cause suppuration are malignant. Pus may come from the anterior nares in suppurative conditions of adenoid vegetations; a fetid odor is a common accompaniment. Syphilitic necrosis of the nasal bones most frequently attacks the septum. Among ulcerations, frequent forms are lupoid, tubercular and syphilitic. Abscess of the septum follows injury; and is painful in contradistinction to previously mentioned conditions. Atrophic rhinitis or ozena has a distinct and marked smell; the patient, however, does not appreciate the smell at all. The large open space, adherent crusts, characteristic smell, possibly the sunken bridge of the nose—all tend to facilitate diagnosis. Most writers now hold that polypi are secondary to some form of suppuration in the nose, and not that the former are cause while the latter is effect. In regard to disease of the sinuses the old idea that pain under the eyes denotes antral trouble, pain over the eye, frontal trouble, and occipital headache or pain at the vertex, sphenoidal disease, is regarded as fallacious. Tenderness over the palpable cavities is not invariable, though fairly constant. Symptoms will vary in accordance with the open or closed condition of the normal orifice of the involved cavity. The first step toward locating the diseased cavity is to determine whether the pus comes from above or below the middle turbinate body; in the former case the sphenoidal sinus or posterior ethmoidal cells are the source. An occluded antral suppuration is rare; if present the inner or nasal wall bulges and there is infraorbital pain; transillumination aids in diagnosis and probe function makes diagnosis certain. In acute frontal empyema orbital swelling and protrusion of the eye with intense pain are marked symptoms. In the open form, with pus coming from near the anterior end of the middle meatus, a probe may be passed into the cavity and a cannula introduced, followed by washing.

Pest Toxin.—There are present in the sterile filtrate of pest bouillon cultures certain substances which upon inoculation produce in mice and rats an acute, in guinea-pigs and rabbits a chronic intoxication. These substances have been called "pest toxins" and have been submitted to much much investigation. The latest work in regard to them comes from MARKL (*Ztschrift. f. Hygiene u. Inf.*, July 31, 1901). He shows that the pest bacillus freshly isolated from the animal body and cultivated aerobically in bouillon always produces

soluble poisons. The power of these differs according to the nature of the mediums, the age of the culture and the variety of research animal employed. With increasing age of the culture their power on mice is gradually lost, but this immediately returns when the culture is newly transplanted. By the inoculation of gradually increased doses one can produce a high degree of resistance in research animals, the blood-serum of which if drawn at the proper time is antitoxic to the pest bacillus and is able to immunize animals infected with this organism. The correct time to draw such blood is three or four weeks subsequent to the commencement of the inoculations. If in addition to the toxin inoculations one subjects the animals to a series of infections with the dead bodies of the bacilli a combined immunity both against the toxins and infection may be produced. Here the best time to draw the blood is three or four weeks after the last toxin inoculation and one or two after the last culture injection. Such serum posses no toxic power no matter how soon taken after the last inoculation. By heating the filtrate of pest bouillon cultures to 50° C. the poisonous effect on mice is lost, while it remains for rats, rabbits and guinea-pigs. This shows that the filtrate contains two different yet filtrated poisons.

Treatment of Internal Hemorrhage.—During the past three years subcutaneous injections of gelatin have been used with success in the treatment of internal hemorrhages by Quincke, Wagner and others. A series of these cases is now reported from Kiel by DR. GRUNOW (*Berlin klin. Woch.*, Aug. 12, 1901). The preparation used was a 2-per-cent. solution of gelatin in physiological salt solution; the quantity ordinarily used was 200 c.cm. Among 27 cases, including severe hemorrhages from the lungs, stomach, intestines, bladder, kidneys and aneurisms, but one case terminated fatally. The pain at the injection-site is usually severe and in some instances fever and a urticarial eruption follow, but these accidents are regarded by the author as of relative insignificance. The buttocks offer the most convenient site for the injection of the gelatin solution, as the tension of the loose tissues beneath the breasts differs in the various stages of respiration. The latter site is particularly to be avoided in pulmonary cases suffering from dyspnea.

Infantile Typhoid Fever.—The symptoms run about as follows, writes A. A. STRASSER (*Med. Rec.*, Aug. 24, 1901). Few prodomata, incubation not noticeable by any change of action, no headache, there may be initial convulsions. The fever is the prominent symptom and is more or less erratic. Diarrhea and obstipation are about as frequent as in any other infants' disease. Epistaxis and bronchitis are common. The tongue is only that of any fever; rose spots are not always present. The spleen and liver may be enlarged, but are often found so in other diseases of children. Typhoid may be mistaken for malaria, gastro-enteritis, broncho-pneumonia, tuberculosis or meningitis. Abortive cases are frequent, mortality is less, and convalescence more rapid than in adults. The ideal treatment consist of a modified Brand method of baths, cold packs or alcohol rubs, combined with a modified Woodbridge treatment with salol, bismuth compounds, etc. For constipation calomel, for hemorrhage or meteorism turpentine or ice-water enemata may be recommended. Urotropin will act beneficially on the bacilli-laden urine. When convalescence has begun and not before, tonics are indicated.

Heart Disease and Its Treatment.—The predominence of the heart muscle itself in the clinical bearings of heart disease—excuding septic endocarditis—is emphasized by GRAHAM STEELL (*Quarterly Med. Jour.*, Aug., 1901). It is the muscle of the heart that we can almost alone influence by treatment. Even here our sources may be crippled by toxic degenerations and by mechanical conditions, such as narrowing or thrombosis of the coronary branches. Steell believes that harm is done in heart cases by excessive carbohydrate diet, owing to the congested state of the liver and the resulting crippled state of the organ, the functions of which are probably augmented by a largely carbohydrate diet. For the treatment of gastric catarrhs due to cardiac incompetence twelve or twenty-four hours' abstinence is recommended. The question of digitalis being a factor in the production of the sickness has to be considered. The quantity of urine passed is the best guide as to the administration of digitalis; the drug acts slowly, and when diuresis sets in before the lapse of a certain time it is probably spontaneous and not the result of the treatment. Occasional sharp purgation is especially useful in the face of high arterial tension. Simple rest in bed will frequently induce profuse diuresis with disappearance of dropsy. While tonics and strychnine can be given with impunity, Steell prefers to postpone the use of digitalis until dropsy or an engorged liver indicates its use. Paroxysmal dyspnea specially indicates the use of morphine; where such dyspnea is associated with much tension of pulse nitrites and alcohol will at first give relief.

The Prognosis of Traumatic Hysteria.—By far the larger number of cases are made the bases of personal injury claims, writes PEARCE BAILEY (*Med. Rec.*, Aug. 24, 1901), and it is easily understood why a hysteric is often misjudged. The disease finds expression in physical symptoms, such as paralysis, defects in sight, smell, hearing, etc. The normal sensory stimuli fail to be transferred to association systems, and the patient feels, sees, tastes, smells, etc., without being aware of it, and with a firm belief in his own incapacity. Since such belief is false hysteria deserves to be classed among the delusional insanities. It must not be forgotten that a fixed idea may disorganize the life of an individual as much as a surgical injury, and that it may take root so deep that it can never be gotten rid of. In traumatic hysteria, bad heredity makes the prognosis unfavorable, for instability of nervous func-

tion is the natural birthright of children of the insane, epileptic, alcoholic or other degenerates. In the author's experience, however, many of the victims of traumatic hysteria have as good family records as most people. The older the patient, the more likely are the symptoms to become permanent, especially in the presence of chronic diseases; alcoholism and arteriosclerosis being the worst. In the healthy and well-nourished there is more hope. Monoplegias usually recover rapidly, hemiplegias less rapidly, and paraplegias are most rebellious. Twitchings, hiccough, and choreiform movements are of little significance. Shifting, inconstant anesthesia is of more favorable omen than that which is profound and constant. Blindness and deafness may be serious, but affections of taste have accompanied the mildest only of the author's cases. If, after an accident, a patient could be isolated and cared for properly, he thinks we would hear very little of persistent traumatic hysteria. Likewise it is practically impossible for a patient to recover from this disease while money is at stake, so the longer the litigation is postponed the more permanent are the symptoms likely to be. Nevertheless the money is not the cause of the symptoms, and immediate recovery on receipt of damages is not to be expected. Indirect suggestion, by convincing the patient that he can do things which he thought impossible, is the most efficient treatment.

Origin of Oxalic Acid from Protein and Protein Derivatives.—Whether oxalic acid is a metabolic product, or is found in the urine and feces only as a result of elimination of that which is taken in the food, is considered exhaustively by A. E. AUSTIN (*Boston Med. and Surg. Jour.*, Aug. 15, 1901). This writer concludes that oxalic acid is derived from the carbohydrate group in albumins, presumably through the intervention of glycocoll by a process of splitting through which the remainder is converted to urea—a vital process, though imitated by strong oxidizing agents. Oxalic acid may also be derived from uric acid by fermentative action and oxidizing agents, and perhaps also by vital processes. It is present in many of the organs of the body, and is present in urine after long periods of fasting. It may be classified with acetone and oxybutyric acid as a measure of abnormal retrograde metamorphosis.

Prognosis and Treatment of Hernia in Childhood.—The cure of rupture in children is on the whole easier and simpler than in the adult. Nevertheless such cases are often allowed to go uncured owing to apathy and indifference on the part of parents and guardians. The natural tendency toward spontaneous cure is greatest in the first months of life, and becomes steadily less each year. G. HEATON (*Quarterly Med. Jour.*, Aug. 1901), from a study of over 2,000 cases of rupture before the age of twelve years, concludes that usually cure by a truss may be confidently expected when its use is begun in the first twelve months of infancy; after the age of six or eight years the prospect of cure by truss is very much smaller. Umbilical herniæ in young children are most amenable to treatment; a well-applied pad or truss generally suffices. Where the umbilical cord is dilated into a sac at the navel, surgical interference should be prompt. Femoral herniæ are at the other end of the list as regards treatment by truss; but even in female children this class of hernia is comparatively rare. Social conditions determine the amount of persevering and intelligent coöperation to be expected, and has important bearing on prognosis. Special attention should be paid to digestion, inasmuch as flatulence and irregular action of the bowels put increased pressure on the inguinal and femoral rings. Bronchitis, rectal polypus, a tight prepuce, or any condition which causes straining or crying, is a potent factor in maintaining or even causing hernia. While favoring a trial of properly applied trusses in young children suffering from reducible inguinal hernia, Heaton strongly advises operation after the age of five or six years.

Infection Spread by Domestic Pets.—Communication of anthrax and glanders from lower animals to man has long been established, and we know of the like transmission of scarlatina, diphtheria and enteric fever by cow's milk. On account of the filth engendered, the German law prohibits the keeping of domestic animals in pharmacies. W. B. MEANY (*N. Y. Med. Jour.*, Aug. 17, 1901) gives a resumé of cases of diphtheria in pigeons, chickens and cats, and reports disease resembling human diphtheria in swine, sheep, horses, cattle and dogs. Hair, fur, wool and feathers undoubtedly carry such infection. The plague has been spread by cats, probably caught through their rat-hunting propensities.

THERAPEUTIC HINTS.

Infantile Convulsions.—The chief therapy should be directed to removing the cause. During the convulsion, if there is high temperature, the child should at once be placed in a tepid bath and cold water poured over it. Acetanilid or quinine may be given. In reflex convulsions, especially from colic, a warm or mustard bath is serviceable. This is contra-indicated if there is cerebral disease, or if the convulsions appear at the end of an exhausting illness. Indigestion indicates an emetic or calomel, swollen and tender gums should be scarified, and otitis relieved by puncturing the membrane. The violence of the spasm may be checked by the inhalation of a few drops of chloroform or nitrate of amyl. The general irritability may be diminished by bromides, chloral, belladonna, or cannabis indica. Ice or wet cloths should be applied to the head if meningitis is suspected. In infants a few weeks old, convulsions are usually due to dyspepsia, and the food should be changed at once. The bromides are useless or harmful in such a condition. —ASHBY and WRIGHT in "Diseases of Children."

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SATURDAY, SEPTEMBER 7, 1901.

IS THE NEW YORK HEALTH DEPARTMENT WHAT IT SHOULD BE?

IN estimating the value of a health department to a large municipality, it is to be regretted that tangible factors whereby its efficiency may be measured are for the most part lacking. We know of no ready means by which, for the time being at least, such a department may be known to be doing its duty in protecting the lives of the citizens who bring it into existence. Modern health board work is largely devoted to prophylactic medicines and the results of lazy and incompetent officials make themselves known only after an appreciable length of time.

There is, however, a flavor connected with hygienic science which, if of the true type, can convince the intelligent citizen of the character of the work being done, and it is with regret that we register our feeling that the health department of this city, taken as a whole, does not bear that stamp of genuineness that we would like to see.

Primarily there is a forced air of clericalism, a dry-rot formalism in the work done that presage political influences. These evidences, combined with the significant fact that the Department has been apparently most signally outdone in its efforts to control the smallpox epidemic, lend more than an air of probability to the sentiments voiced in the *New York Times*, under the caption "The Demoralization of the Health Department."

The writer goes on to say: "Recent changes in the personnel of the Health Department, to its disadvantage, emphasize the fact that the introduction of politics into the administration of the one department which should be forever exempt from such contamination, has created an atmosphere which men who are not politicians and who have no other object in accepting office than to discharge its duties faithfully and skilfully cannot breath with comfort.

"Under President Murphy the office of the board became a rendezvous for small politicians, and what they wanted had more weight than anything recommended by the experts of the department staff. Such conditions lowered the standards of the department rapidly and forced the resignation of most of the self-respecting specialists of the staff. Under President Sexton the conditions are even less agreeable than before. Dr. Tracy's large experience and special qualifications helped to maintain the fiction that the board was what it used to be; but he has had enough, and his retirement makes a vacancy for some such luminous statistician as his predecessor, Dr. Nagle, who, not finding appreciation in his office as head of the Bureau of Municipal Statistics, probably wants to return to his old place in the Board of Health.

"The first business of a reform administration, when we secure it, will be to redeem the Health Department from its present deplorable demoralization and restore it to its original condition as the one division of the City Government which was free from the taint of Tammany manipulation. Perhaps it needs a memorable object lesson in what can happen to a city when its sanitary administration is controlled by professional politicians to emphasize the danger which may at any moment result from existing conditions."

That such an object lesson might result, is possible, but bad politicians working in health department jobs rarely "give themselves away," since the health of a community is in the hands of its physicians rather than in those of a Health Department. May the time soon come when the responsible head of a department, doing the active hygienic work of a city of over three

million inhabitants, will be other than one which the present system now allows; who, if reports are to be believed, has so much knowledge of hygienic science as not to know even the name of the most prominent hygienist that the medical world has ever known.

UNDER the smoke of the tunnel nuisance we fear that our Health Department is making much ado in order to hide other delinquencies of a more important character. That the tunnel is an unmitigated nuisance admits of no question, but that it is inimical to the health and welfare of the citizens of New York and, as such, a proper subject of inquiry by the Department is open to question. While we do not desire to enter a brief for the railroad, nor encourage such an unpleasant condition of affairs to continue, it seems to us more reasonable that the Health Department take up work of a much more practical character. We might suggest, as a single item only, a more efficient supervision of the Street Cleaning Department, as our streets still remain in a filthy and disgusting condition.

BIOLOGY AND COMFORT.

WE have referred before to the plans of the North Side Protective Association of Long Island for ridding a large tract of country of the mosquito—always a menace to comfort and sometimes to health. To carry out this scheme it was necessary, first of all, that a biological examination of the waters of the region should be made to determine just where the mosquitoes are breeding and what means will best serve in the treatment of each spot. This work is one that requires expert knowledge, for in the woodland ponds and by the side of the country brooks there are many "wrigglers" that have nothing to do with mosquitoes, but are easily mistaken for them. Moreover, only the biologist who understands the dependence of the mosquito larva upon its environment and its relation to other organisms can properly indicate the proper mode of treating any breeding-place—whether by filling, draining, petrolizing or stocking with fish and predaceous insects.

It was the good fortune of the Association to have in its territory a biological institute whose organization could be employed for its unusual but still biological needs. The magnitude of the task proposed by the Association appealed to the imagination of the workers at the Biological Laboratory at Cold Spring Harbor; they saw the mutual advantages that would accrue through coöperative work and so the union of forces took place—the North Side Protective Association providing the money and influence necessary to carry on the great mosquito campaign and the Cold Spring Harbor Laboratory providing the technical knowledge and the trained workers to study the biological aspect of the problem of extermination and to make recommendations as to the treatment of each breeding-place. What will remain will then be a series of engineering problems and board of health legislation. The Laboratory has been called upon also to organize the campaign of education by which it is hoped to stir up health boards, property owners and other residents to the danger of mosquitoes and to the need of doing away with local breeding-spots.

We feel sure that the Cold Spring Harbor Biological Laboratory will be amply repaid for the effort that it is putting forth to further the plans of the Association. It will benefit by the carrying out of the plans of the Association as an occupant of the territory from which it is proposed to eliminate the mosquito; but it will benefit also, in time at least, by its relation with a body of influential citizens who will recognize that the work of the biologist is not merely hair-splitting theorizing, but for the most part something more important than that, namely, the discovery of the general laws that govern living creatures. And in the future, as in the past, the discovery of these general laws will inure not merely to the comfort, but to the deepest welfare of the human race.

PROPHYLAXIS, DISINFECTION AND CONTAGIOUS DISEASES.

QUARANTINE and disinfection have hitherto been the chief means employed for the control of the spread of contagious disease. The value of these agents consists in the ability to prevent the contact of the healthy with the infected and the power to destroy the contagium vivum in the surroundings of those sick with contagious diseases. Notwithstanding active measures, however, such affections are common and it behooves us to ask whether the methods or quarantine now in vogue are efficient.

An opinion of their value may be gathered from a study of the results obtained by different methods of quarantine and disinfection when applied to an infectious disease the bacteriology of which is

firmly established. In one of our large municipalities, up to the year 1895, the method of disinfection in vogue after diphtheria had been the time-honored sulphur fumigation. Quarantine methods had been restricted to exclusion from school, which restriction was released when in the judgment of the attending physician the patient had recovered. At this time radically different methods of quarantine and disinfection for this disease were introduced. The system of disinfection comprised (1) the removal of all non-washable goods from the infected apartment and the subjection of the same to live steam; (2) the application of a proper carbolic or bichloride solution to all washable articles, walls, furniture, etc.; (3) in all tenement houses, in addition to school exclusion, the doors of the infected apartments were placarded with a sign denoting the existence of diphtheria within, which was not removed nor the patient released from quarantine until a culture from the throat had failed to show the diphtheria bacillus.

A great reduction in the number of cases was confidently expected. The following is the result, comparing two years under the old system with the same number under the new. In 1893 there were reported 1,672 cases; in 1894, 3,812 cases; in 1895, 4,216 cases, and in 1896, 4,912 cases. The population statistics are as follows: 1893, 996,715; 1894, 1,060,000; 1895, 1,091,646; 1896, 1,129,010. These figures show that the number of cases per 1,000 during these years was as follows: 1893, 1.6; 1894, 3.5; 1895, 3.9; 1896, 4.3. It may be said that the increase in the number of cases reported in 1894, 1895 and 1896 was in some measure due to the application of bacteriological methods to the diagnosis.

Previous to 1895 the methods of quarantine were notoriously lax and the inability of ordinary sulphur fumigation to destroy the diphtheria bacillus is well known, yet a very conservative opinion would be that the newer methods of disinfection and quarantine founded upon a scientific basis had at least failed to reduce the number of cases. A consideration of these figures shows the inability of advanced methods to improve materially the existing conditions, and forces us to the conclusion that if we are to be successful in this conflict other factors must be brought into play.

The production of artificial immunity as a prophylactic measure against bacterial diseases has recently been brought into prominence. The idea, of course, is not new as it has been utilized for over one hundred years with respect to smallpox. Within recent years inoculations have been used to prevent the spread of diphtheria, principally in institutions where large numbers of children are confined. The results obtained have been excellent and furnish much food for thought. Unfortunately the duration of the immunity thus produced is in most cases short, in contradistinction to that produced by vaccination, but still sufficiently long to meet the emergencies of a prevailing epidemic. The extensive employment of preventive inoculation against those diseases with respect to which the same is available cannot be too strongly urged at the present time, for it seems certain that in the future this is to be the most effective agent in the prophylaxis of contagious disease.

SEEN from another point of view the singular conservatism of a formal procedure in the mode of quarantining certain diseases is of interest. If the investigations concerning yellow fever have pointed out without peradventure of a doubt the true mode of contagion in that disease, then the conventional modes of quarantine are worse than useless in that they impose heavy burdens on mercantile interests and are laughably inappropriate in fulfilling their function.

If there is no contagion in contact, nor can the disease be communicated by other agencies than by direct transmission by an animal, such as the mosquito, then it were wiser to adopt the standpoint of Dr. Havard who in a recent report says: "The duties of quarantine officers have also become singularly simplified. Since we may assume in practice that the infectious germs do not exist outside of man or mosquito, the disinfection of trunks and baggage on account of yellow fever is no longer justifiable. All that is required will be the examination of the non-immunes within five days immediately following their last exposure to infection, the danger of transmission being from their own persons, and in nowise from their clothing or baggage. Ships, like houses, are liable to harbor infected mosquitoes, and will continue to require fumigation."

Thus, again, is the principle reinforced, that prophylactic science must first know the factors involved in the mode of spread of a disease and not advocate a miscellaneous stenching of the air on every occasion, which is little more than a wild shaking of the arms with blindfolded eyes.

ECHOES AND NEWS.

NEW YORK.

Fire in Williamsburg Hospital.—On Saturday night, August 31, 1901, a fire broke out in the laundry of the Williamsburg Hospital located at the corner of Bedford Avenue and South Third Street, Borough of Brooklyn. It was extinguished by Dr. Dowd, the resident physician, and the nursing staff before material damage had been done.

Disease Among Bees.—State Agricultural Commissioner Wieting is giving special attention this year to the work of the bee-keepers in this State. Up to July 20th the four agents inspecting bees under the charge of the Department of Agriculture have examined 416 apiaries, embracing 13,393 colonies. Of this number 229 apiaries were found more or less infected with black or foul brood and 1,834 colonies were condemned to destruction, or to be treated with such remedies as have been found effective. Were it not for the carelessness and negligence on the part of so many bee-keepers the Department would feel that it could soon suppress the prevailing contagious diseases among bees in this State.

To Fight Malaria.—Physicians in public institutions, hospitals, and asylums will be required from now on to submit reports of all cases of malarial fever that come under their observation to the Board of Health. President Sexton said to-day that from all the reports he had received, malarial fever seemed to be a contagious disease. At a special meeting of the Board of Health, held Monday, the following resolutions were adopted:

"*Whereas,* Recent investigations have shown that malarial fever is an infectious disease, and can be largely prevented by the adoption of simple precautions, and

"*Whereas,* It is the desire of the Department of Health to prevent the extension of malarial fever, which now exists in some of the boroughs, to the other boroughs, and to restrict its prevalence in those boroughs where it already exists.

"*Resolved,* That all public institutions, hospitals, home aslyums, etc., be required to report all cases of malarial fever which come under their observation, giving the name, age, sex, occupation, and present address of the patient, and also information as to whether the attack is a primary infection or a relapse, and the address where the disease was probably contracted.

"*Resolved,* That all physicians in the city of New York be requested to furnish similar information in regard to patients suffering from malarial fever under their care.

"*Resolved,* That the circulars of information of the Department of Health regarding 'the causation and prevention of malarial fever' be mailed to the addresses in which malarial infection has apparently been contracted, and also to the addresses from which the cases are reported, when these are different.

"*Resolved,* That postal cards for furnishing the required data be prepared and forwarded to institutions and physicians for reporting the cases of malarial fever which come under their observation, as is done in other infectious diseases."

PHILADELPHIA.

Bequests to Charity.—By the will of the late Catherine Foley an estate of $15,500 is devised to charitable institutions. St. Joseph's, St. Mary's, and St. Agnes's Hospitals and the Consumptives' Home are among the beneficiaries.

Health Officers Urge Vaccination.—Members of the Bureau of Health claim that the increase in the number of cases of smallpox in this city need occasion no alarm, but they have issued a statement urgently requesting that all persons who have not been vaccinated within the last seven years be immediately vaccinated. Thirty-one new cases and two deaths were reported last week. One of the patients is a nurse from the Pennsylvania Hospital, she having contracated the disease from a patient who had been admitted to the wards.

Defense of the City by Health Officials.—The death-rate of this city, which was higher than that of any other northern city during 1900, is still the subject of much discussion. Colonel J. Lewis Good, Chief of the Bureau of Health, is absolutely certain that the fault is not in that department. He claims that, although the city has largely increased in size during the past twenty years, the sanitary conditions on the whole have improved. The year 1900 was also an unfortunate year for Philadelphia. Neither the house nor street drainage is considered inferior to that of other large cities. The showing thus far this year is much better than that of 1900, notwithstanding the unprecedented hot weather in July. The deaths from typhoid and scarlet fever were fewer in 1900 than in any year since 1880 with the exception of three or four.

Death of a Public Benefactor.—John D. Laukenan, President of the German Hospital and of the Mary J. Drexel Home, died August 30th, aged eighty-three years. The Mary J. Drexel Home was entirely supported by Mr. Laukenan and it is estimated that in this way and by benefactions to the German Hospital he expended nearly $2,000,000.

Cremation Statistics.—The increase in the number of cremations has been quite large during the past five years. Last year the number of bodies thus disposed of was 118 and thus far this year they number 62.

CHICAGO.

New Rules for Hospital Staff.—Warden Healy of the Cook County Hospital has issued a guide for physicians, internes and nurses. He believes in systematizing hospital work in such a manner that everything which

goes on from day to day can be known by him and be practically under his personal supervision. The new rules are as follows: (1) Transfers must be reported immediately to Warden by interne in charge of patient at the time the transfer is ordered by attending man. (2) Notice of emergency service and transfer cases should be immediately telephoned to attending surgeon and the particulars of the case given to party answering telephone. (3) Operation blanks must be filled out each day and filed in the Warden's office before nine o'clock the following morning. Duplicate operation blanks must be left with the Warden every Saturday before five o'clock P. M., for the use of the attending surgeon. (4) The junior surgeon must make the final preparation of patient before operation, both in and out of clinic. The senior surgeon should not be permitted to make such preparations, as it greatly endangers the aseptic result. (5) Instruments, needles, sponges, etc., at operations should be handled entirely by the nurses. (6) Senior internes are directed to comply with and enforce orders and instructions of attending surgeons and physicians as to prescribed treatment for patients assigned to their service, and report to the Warden any neglect of patients by nurses or junior internes. They will pay strict attention to rules governing the discharge of patients before twelve o'clock, noon, each week day. (7) Train cases will be taken to Dunning on Mondays, Wednesdays and Fridays. Ambulance cases Tuesdays and Saturdays. (8) Dunning cases should be reported to the Warden's office the night preceding their discharge.

Physical Tests for School-Teachers.—As a result of one year's trial of the plan requiring candidates for positions as teachers in the public schools to pass a physical examination before receiving certificates, there has been a marked improvement in the physical condition of the applicants. When the new order requiring physical tests was promulgated a year ago, it occasioned much apprehension among students in the public schools and in the Chicago Normal School who were ambitious to become teachers. It was feared that the additional requirements would bar many of the best students from the teaching profession in this country. Instead of discouraging the aspirants, however, it has stimulated them to take physical exercise, and to use greater care in diet. In one year the effect of the plan has been to arouse the young women to the necessity of care for their health. Knowing that this examination was coming, these girls have taken care of themselves. In ascertaining the fitness of women for the important work of molding the plastic minds of children, too little attention has been paid to their physical condition. It is unfortunate that necessity so often leads to physical impoverishment and deterioration in the women who prepare for the vocation of teaching. No profession makes such exacting demands upon physical vitality and nerve force, and it is a fact that patience, cheerfulness and forbearance, essential requisites in the ideal teacher, are not found in weak and impoverished bodies.

Return of Dr. Reynolds.—The Commissioner of Health of Chicago, Dr. Arthur R. Reynolds, has just returned from London, England, where he attended the Tuberculosis Congress, as well as the British Medical Association. Before the latter he delivered an address on typhoid fever, and also told something about the operation of the drainage canal and its effect upon the city water supply. He found that European physicians were familiar with what had been and is being done here, and especially so with the work with diphtheria and vaccine lymph.

Garbage Problem.—In London he investigated the methods of disposal of the city's waste, and found that it was an entirely different proposition from our local garbage problem. It was a rare thing to find in the waste there a vegetable or a piece of meat. He saw nothing but dust, paper, etc. The absence of animal and vegetable matter from the garbage is not due to municipal regulation, but to custom. It showed that the American people were much more improvident than the English. The watermelon rinds, the potatoes, the decaying apples and the spare ribs which litter the alleys here are utilized in London. The English are more interested in tuberculosis than are Americans. Tuberculosis is practically the only thing for which the English examine meat and milk, while in Chicago these articles are examined for a score of things.

Typhoid Fever.—Dr. John C. Neely, Assistant Chief Medical Inspector, recently made a report to the Department of Health, in which he says that of 67 cases of typhoid fever, 11 were found to have been undoubtedly contracted outside of the city, and two others were doubtful. This proportion agrees very closely with the results of previous investigations, namely, that about 18 per cent. of the fatal cases of typhoid in Chicago are contracted elsewhere, and are not due to local causes. Among 54 deaths referred to typhoid fever 9 were clearly caused by other diseases, and 6 others were doubtful. Including these doubtful 6, however, as among the typhoid deaths, the investigators attribute the following as causes of the disease: Bathing in the Lake, 2; eating raw vegetables, 2; drinking untreated hydrant water, 37; and for the remaining 4 out of the total 45 cases no cause is assigned. In this investigation particular attention was paid to the milk and ice supply. Three different milk dealers each furnished milk to two of the homes where deaths occurred, and one other to three of the homes. Ice was furnished to three families by two firms and to two families by another firm. So far as can be learned, no connection can be established between the homes supplied with milk and ice by these firms.

Inoculation Experiments.—No successful inoculations have yet been made to test Professor Koch's recent pronouncement that bovine tuberculosis is not transmissible to mankind. The

only culture of the bovine tubercle bacillus available in the city was so old as to prove inert, and a fresh culture is being made with which, when ready, the test will be renewed. Six volunteer subjects are ready for the test.

Resignation of the Sherman Hospital Advisory Board.—It is said that this Board, composed of Drs. James A. Rutledge, Wm. C. Bridge, and Leonard S. Taylor, has resigned. This is another step in the conflict which has been precipitated by the efforts of the Elgin Woman's Club to dominate the medical staff and conduct the hospital after its own methods.

Experiments of Food Values.—We are reliably informed that professors of Rush Medical College have on foot a series of experiments to determine the effects of different foods upon the mental power of individuals, and it is said that these experiments will be conducted upon students of the Chicago Hospital School, recently affiliated with Rush. The students of this school, which has a large number of defective children, will be divided into classes and restricted to a particular diet for a given period of time until the effects can be noted.

A Playful Suggestion to the Health Department, According to the Daily Press.—"Shall hogs be used as scavengers for Chicago streets?" is an issue which may be laid before the City Council at an early day. The Alderman of the Second ward will introduce an ordinance suggested by Mrs. C. T. Babcock. "I could hardly say," said Mrs. Babcock, "what suggested the idea to me, unless it is the filthy condition of the alleys. The plan I suggest can stand on its own merits. I propose that the city own and permit to run at large a sufficient number of hogs. These hogs should be branded in order to prevent theft and the brand should also show what wards they belong to. I suggest also that the hogs should be branded with the names of the Aldermen of the wards. As fast as the hogs get fat the city should sell them at the stock yards and replace them with hogs that are in poor condition, and in that way produce quite a revenue. But this is not all. I would supplement the city drove by private hogs. I would ask all who could afford to do so to buy hogs for the consumption of garbage."

It would seem from this that the scenes of "Our Mutual Friend," which so upset our readers of Dickens many years ago, might be again enacted in the streets of Chicago. Let us all hope it is a newspaper hoax.

GENERAL.

Health Board in Philippines.—Prof. Paul C. Freer of the general chemical laboratory of the University of Michigan has gone to the Philippines to take charge of a branch of the Department of Health there. He has received a year's leave of absence from the university.

Tri-State Medical Society of Alabama, Georgia and Tennessee.—The thirteenth annual meeting of the Tri-State Medical Society will be held at the Tulane, Nashville, Tuesday, Wednesday and Thursday, October 8, 9, and 10, 1901. The attendance promises to be large and an unusually attractive program will be presented. The railroads will give reduced rates. Those intending to read papers should send title to the Secretary, Dr. Frank Trestor Smith, Chattanooga.

Bequest to a Hospital.—By the will of Mrs. Elizabeth N. Thompson, widow of Dr. Austin W. Thompson, which has just been filed, the sum of $25,000 is given to the Cooley Dickinson Hospital in Northampton, Mass., the bequest to take effect upon the death of Mrs. Thompson's step-daughter.

Tuberculous Houses.—The danger of living in a house that harbors consumptives is illustrated by the fact that of 6,273 patients officially examined by the German Imperial Board of Health 2,177, or 34.7 per cent., belonged to families that included other victims of tuberculosis.

Echoes of the St. Paul Meeting.—In the *Münchener med. Wochenschrift* for August 20th, Dr. Carl Beck contributes an interesting letter describing the incidents of the trip to St. Paul of the special train from New York City.

A Royal Tuberculosis Commission Appointed.—King Edward has appointed a commission to investigate Prof. Koch's tuberculosis theory. The scope of the inquiry is officially said to be whether animal and human tuberculosis are identical; whether animals and humans can be reciprocally infected, and under what conditions, if at all, transmission to man occurs, and the means of combating it. The commissioners are Sir Michael Fostre, Secretary of the Royal Society; Dr. Sims Woodhead, professor of pathology, Cambridge University; Dr. Harris Cox Martin, Prof. J. McFadyean, and Prof. R. W. Boyce. The commission has been granted the fullest powers and facilities and the members have been urged to make a prompt report.

Army Vacancies for Assistant Surgeons.—The examination of applicants for appointment as assistant surgeon in the army has been resumed in Washington and San Francisco, and the army medical boards convened in those cities will remain in session as long as there are candidates to be examined. Seventy-six vacancies in the Medical Department still remain to be filled, and as it is desired by the military authorities that the Department be filled up to its full legal limit as early as practicable, all eligible applicants will be afforded opportunity for examination, and those found qualified will be commissioned at an early date.

Outside Lepers Not Desired in Louisiana.—Applications have been made from St. Louis to Governor Head and the Louisiana Leper Commission for the admission of Dong Gong,

a laundryman of that city, recently discovered to be a leper. The St. Louis authorities declare that there is no hospital or home in Missouri, nor indeed any other in the country save in Louisiana, to which lepers can be sent, and it was proposed that Louisiana accept the Chinaman. Albert G. Phelps, President of the Board of Control of the Lepers' Home, said that the offer could not be accepted. The board frequently received propositions of this kind from various States but had declined them all. "The Leper Home of Louisiana," he said, "is supported by the taxpayers of the State and it would be unfair to allow the home to be a refuge for the afflicted of other States. About a year ago three lepers were discovered in New York. There was no hospital in that State to which they could be sent and the poor creatures became a burden on the health officers. A rich woman of New York offered to support the three lepers for life if they could be placed in the Louisiana Leper Home. Admittance was refused. The care of Dong Gong will be laid before Governor Head who will dispose of the application. I am inclined to believe that the Governor will take the same view of the matter as I do."

Journal of Medical Research.—Under this title the *Journal of the Boston Society of Medical Sciences* will be continued under the editorial charge of Dr. Harold C. Ernst. The journal is devoted to the prompt publication of original investigations in medicine; will be published as rapidly as material accumulates, and is the direct continuation of the *Journal of the Boston Society of Medical Sciences.* The expansion of the latter journal is the result of a demand that it should cover a wider field of medical activity than its name would allow. The journal is supported by the American Association of Pathologists and Bacteriologists, the Boston Society of Medical Sciences, and other sources of strength. The first number contains most of the papers read at the annual meeting of the American Association of Pathologists and Bacteriologists in April, 1901. Succeeding numbers will be published as material accumulates, each containing fifty pages at least. Volumes will consist of about five hundred pages, and when one is completed another will be begun. The journal has been started because there appeared to be wide-spread demand for a place in which the results of medical investigation could be given prompt publication, and the support already promised seems to make its success a certainty.

Quietus to Dr. Caldas' Protective Serum.—Major Havard, Chief Surgeon, says that, as the Yellow Fever Commission regards the experiments with the Caldas serum as demonstrations of its uselessness, the commission has definitely severed connection with the Brazilian expert and will not supervise any further experiments conducted by him.

"Dr. Caldas has all along maintained that he found the yellow fever germ in the intestines," remarked Major Havard to-day, "whereas all the experiments conducted here prove that the germ of the disease is in the blood, people having been directly inoculated by blood infection from a person suffering with yellow fever."

Major Gorgas, Chief Sanitary Officer, made the following statement: "Some confusion has arisen regarding the precise position of the Sanitary Department in connection with the yellow fever experiments. In March of this year the Sanitary Department established an inoculation station at Las Animas for the purpose of inoculating non-immunes—that is to say, giving them yellow fever in order to make them immune. This was not an experimental station, and is not such, the sole object being to effect immunization.

"The Sanitary Department has nothing to do with the recent experiments conducted by the Yellow Fever Commission nor with those conducted by the officials sent by the War Department to investigate the origin and propagation of yellow fever, although it did supply the Carroll commission with mosquitoes.

"The Sanitary Department stands ready to immunize any one who desires to undergo the treatment after the risk has been fully explained. It accepts the work of Surgeon-Major Reed and his colleagues of the Army Commission as final, and does not desire to make further experiments in this direction. No amount of evidence could make more positive the conclusion that yellow fever can be conveyed by the mosquito. The person who submits to mosquito infection, however, stands a better chance of recovery than one who contracts the disease accidentally, as the former has care from the beginning."

The Ant as a Surgeon.—The scriptural advice of studying the ways of the ant in order to be wise seems to be followed among certain Indian tribes. We learn from the *Sun* that from a late adventure among the Passamaquoddy Indians who live on the borders of New Brunswick, Dr. Robert Loud of Boston, who has been hunting in the Maine woods for the past month, believes that the aboriginal inhabitants of America are possessed of a wide knowledge of medicine and surgery, using some methods which may be adopted into general practice with benefit to the public. Late in August while camping on the Micmac River he had the misfortune to cut a deep gash in his leg, which bled copiously and caused him much pain and trouble until he was so fortunate as to receive a visit from Chief Oku, a great medicine man of the tribe, whose fame is known among all the Indians of the Eastern States. The cut was badly inflamed when Oku arrived, but he at once reduced the swelling by bathing his leg with a decoction of elm bark and tying up the wound in fresh clay from a brook. When Dr. Loud

asked the Indian to take some stitches in the cut Oku replied: "Heem no good. T'read heem mak' heem swell up, so be sore. See w'at Oku, heem do."

The chief went to a clearing and returned with a dozen large and very lively brown ants. Then, grasping the two sides of the cut between his thumb and finger and pinching them together, he caused an ant to bite at the edge, putting his jaws through both sides of the cut and closing them as firmly as if they had been in a vise. When he had applied eight ants in this manner he cooly pulled off their bodies, leaving nothing but their heads attached.

"Now heem bin stay there 'til heem sore geet well," said Oku, winding a bandage of soft cloth around the leg and fastening it as neatly as a trained nurse could have done. "In nine day—twelve day, maybe, take off cloth; find heem all well."

Dr. Loud followed his instructions and came out cured. The heads of the ants had held on as firmly as pinchers, and although the insects were long dead, it required considerable force to pull away the locked jaws. Dr. Loud also believes that the formic acid which the ants secrete from their mandibles has antiseptic qualities which are unknown to medicine and proposes to make a few experiments along this line on his return to Boston.

A Biography of Dr. S. P. Moore.—As a result of the Memphis Confederate reunion, a biography has been prepared from records of first instance of one of the most important official leaders of the Southern cause, the Surgeon-General of the Confederate States, Dr. Samuel Preston Moore. This appears in a paper in the *Southern Practitioner*, by Dr. Samuel E. Lewis of Washington, an assistant surgeon in the Confederate service and First Vice-President of the Association of Medical Officers of the Army and Navy of the Confederate States: Dr. Moore was a lineal descendant of Dr. Mordecai Moore, who came to this country as physician to Lord Baltimore. He was connected also with the family of the first Deputy-Governor of Pennsylvania under William Penn, Thomas Lloyd. He was born at Charlestown, S. C., in 1813, and became an assistant surgeon in the United States Army in 1835. He became surgeon with the rank of major fourteen years later. During the dozen years between this time and his resignation from the army he served in many parts of the country, from Oregon to the Gulf, from the Texan frontier to Governor's Island in New York harbor. He accompanied the advance guard of troops that went across the plains ahead of the great emigration of 1840. Prior to this he had been for two years during the Mexican War on the Mexican side of the Rio Grande. For five years before the early part of 1860 he was at the Military Academy at West Point, and in the spring of that year he was sent to New Orleans. Having devoted himself to the service and refrained from political concerns and attachments his biographer says, he found himself at the approach of the great struggle much distressed to determine where his duty lay, his mind being as unsettled as that of the then Col. Robert E. Lee. With the secession of his State he decided to quit the army and he resigned his commission. He went to Little Rock, Ark., in retirement, with some intention of making that place his home."

But Dr. Lewis remarks that the times were not conducive of repose, "and trained officers were urgently required in all departments of the army and navy. Therefore, in response to the persistent appeals of his dearest friends, and from a high sense of duty, he concluded to answer the call made upon him as an officer of recognized merit by President Davis and to accept appointments as the surgeon-general in June, 1861."

The Confederate surgeon-general's records were burned in the fire of the night of the evacuation of Richmond, April 2, 1865, and Dr. Moore's private papers, which had been removed from his residence to a place of supposed safety, were destroyed in a part of the city which was afterward burned. So it may be seen why the material for the biography had to be gleaned through correspondence.

Dr. Moore immediately upon his appointment as surgeon-general set about organizing his department, a task whose difficulty was enhanced by the fact that most of the Southern medical men had had experience only in the home practice of civil life and by the action of the United States Government in declaring all medical goods and appliances contraband of war. This action and the blockade of Southern ports threw the medical department of the Southern military service very much upon its own resources.

"The medical department was constrained to seek in its own forests and fields," Dr. Lewis says, "such substitutes as could be found for the more reliable medicines and to build and establish laboratories for converting them into pharmaceutical preparations in large quantities and arrange them in convenient packages for wide distribution and use; to improvise and manufacture by unskilled artisans and the scanty means at hand, such surgical instruments and appliances as their necessity required and ingenuity could invent, which could not be procured through the so-called underground railroad of the time."

The 1,000 surgeons and 2,000 assistant surgeons in the Confederate army treated, according to estimate, 3,000,000 cases of wounds and diseases, Dr. Lewis says. The estimates place the number of Federal prisoners captured by the Confederates and held in Southern prisons at 270,000, and the number of Confederate prisoners taken by the Federal armies at 220,000. Yet, Dr. Lewis says, the number of deaths among the former was 22,570, while the number among the latter was 26,436, the percentage of deaths in the

Confederate prisons being about 8.3 to a percentage of 12 in the Federal prisons. Dr. Moore instigated the formation in 1863 of the Association of Army and Navy Surgeons of the Confederate States and he established by his encouragement the *Confederate States Medical and Surgical Journal*, which was published during the war.

Obituary.—Dr. William H. Bowlsby died at his home, 170 Van Siclen Avenue, Brooklyn, on Monday. He was born at Ballston Spa., N. Y., in 1828. He moved to Brooklyn in 1873 and lived in East New York. He was a member of the Knights of Pythias for many years and when the uniform rank was organized in 1878 was appointed surgeon of the Brooklyn division. In 1880 he was appointed medical examiner of the insurance department of the order, which place he occupied to the time of his death. In 1889 he was appointed surgeon-general with the rank of brigadier and was commissioned by the Supreme Lodge as senior advisory surgeon-general of the uniform rank for life. In 1898 he offered his services to the Government as a surgeon in the war. He is survived by a widow and three children.

Dr. George H. Day died on Tuesday at Iona Island, near Peekskill. Dr. Day was born in Maine in 1833. He was for several years connected with the New York Hotel, New York. For years he practised medicine in Monroe, Orange County, N. Y.

Dr. J. D. Kielty died suddenly August 28th of heart failure. He was born in Fitchburg, Mass., on June 17, 1858, was graduated from the College of Physicians and Surgeons of Boston and Bellevue Medical College of New York. He was city physician from 1887 to 1893, medical examiner from 1892 to 1899, and a member of the Pension Examining Board during President Cleveland's first term.

Dr. George William Wells, since 1892 Medical Director of the Manhattan Life Insurance Company, died at his home at Richmond Hill, L. I., Monday morning of a nervous disorder contracted in the course of his official duties.

Dr. Wells was born in Tyrone, Steuben County, N. Y., June 5, 1841, and traced his lineage back to a family who came from Normandy to England about 1068.

After studying at Farmer's Hall Academy at Goshen, N. Y., Dr. Wells prepared for a college course under the tutelage of the Rev. Daniel Wells, of that town, and was graduated from Princeton in 1865. He then commenced the study of medicine in the office of Dr. Sayre, and was graduated from the Bellevue Medical College in 1868. He attended the post-graduate lectures in the Long Island College Hospital, where he was later made assistant professor of diseases of the nose and throat under Prof. French. He then became physician to the Outdoor Poor Department of the Bellevue Hospital Medical College for diseases of the chest. He was also surgeon of the old Seamen's Retreat Hospital on Staten Island, and practised for ten years as a physician in this city, and for three years in Brooklyn, and then entered actively upon the specialty in which he was best known, as medical examiner at the home office of the Manhattan Life Insurance Company, in New York.

Dr. Wells was also editor of the *Medical Examiner and Practitioner*, and a recognized authority on problems of life insurance. It was largely his foresight that led the insurance companies to appreciate more fully how much their success was dependent upon accurate physical diagnoses of those who applied for policies, he having been among the first to agitate the selection of life risks. Some of his writings on the effect of alcohol, narcotics, and tobacco have been recognized as medical classics.

Dr. Wells was a member of the American Medical Association, for a number of years Secretary of the Yonkers Medical Society, a member of the New York County Medical Association, and the Kings County Medical Society, for ten years Secretary of the Medico-Legal Society, and he had also been Secretary of the Society of Medical Jurisprudence of State Medicine.

CORRESPONDENCE.

THE CANTEEN AND THE AMERICAN MEDICAL ASSOCIATION.

To the Editor of the MEDICAL NEWS:

DEAR SIR: I am glad that Dr. Wilson took the trouble to notice the letter I wrote you some time ago in regard to the Army Canteen.

When I wrote the communication I was under the impression that the procanteen resolution passed by the American Medical Association at St. Paul voiced the sentiment of the Association, but I find that many reputable physicians, among whom are Dr. Crothers and Dr. H. D. Didama, Dean of the College of Medicine of Syracuse University, deny this and state that instead of being the voice of the majority it was the voice of a very small minority of the Association.

When the canteen matter came before this body in full session, it was tabled by a vote stated as two to one. It was then put into the hands of a committee with the general understanding that it was not to be acted on at that session from the fact that the time had been too limited to judge whether doing away with the canteen was an evil or not. Those in favor of the canteen, however, were not willing to let the matter drop, but managed, near the close of the meeting of the Association, when there were but few members present, to have a vote taken on the resolution. The chairman put it to vote. The ayes were called for but not the noes. He declared the resolution passed. If this be a correct rendering of the matter it puts an entirely new face on the whole transaction.

The press immediately throughout the land gave out that this action of the *minority* represented the sentiments of the Association; so it

is generally understood to this day. So far as I am conversant there has not appeared any protest to this action. The Association is supposed to represent the rank and file of the medical profession and why such a representative body would allow without protest a few medical men to pass a measure, as its own, that had been tabooed by Congress and the Christian sentiment of the country, is strange indeed.

Now let us look at this resolution that is supposed to represent the wishes of the medical profession. It reads thus: *"Resolved* that this body deplores the action of Congress in abolishing the army post exchange, or canteen, and in the interest of *discipline, morality* and *sanitation,* recommends its reëstablishment at the earliest date." Here are three reasons why the canteen should have a place in the army. First, on account of discipline. Of all reasons this seems the most singular, the idea being that alcoholic beverages make the soldiers more tractable than abstinence. The getters-up of this resolution were certainly not posted in regard to the doings of the soldiers in and about Manila while under the influence of strong drink. That was during the reign of the canteen. To lift the veil, here is an extract from an article written by Capt. J. M. Moore. He says: "Men (that is, soldiers) would come to Manila, get drunk, assault defenceless women, abuse peaceful natives, disgrace the whole army and tneir country, etc." An English lawyer, a Mr. Sheriden, who was there at the same time, says: "It was surprising to see the American soldiers patrolling the streets (of Manila) in an intoxicated condition, acting as police officials, for which they were utterly incompetent." Also, "One thing is certain, the soldiers were often in a condition that rendered them entirely irresponsible." These quotations could be added to indefinitely, but this will suffice to show that in place of the canteen being a promotion of discipline it was just the reverse. Nearly all the court-martials were laid to strong drink. Our Commander-in-Chief, General Miles, has no good word for the canteen. He says, "I don't believe the present law should be repealed until it has been given a fair trial." Then look at the testimony of the commanders of the British army. Lord Wolseley, Earl Roberts and Lord Kitchener claim that instead of intoxicants promoting discipline, they do just the opposite and should be banished, total abstinence as far as possible being enjoined.

As to the second reason for reinstatement, morality, those in favor of the canteen claim that it should be reinstated because of its moral influence in keeping the soldiers away from base resorts. This idea has been exploded from time to time as a delusion. I have made an extract from a letter of an officer of forty years' service, viz., Brigadier-General A. S. Daggett (retired). He says, "The canteen stands as a constant invitation to the total abstainer to drink, as a temptation to the moderate drinker to drink more, and as a convenience to the drunkard to load up on beer when he has not the means to obtain anything stronger."

This incident might be subjoined here to show that the word 'morality" has no place when looking at the effects of the canteen. During the Spanish-American war, seventeen young men (all abstainers) from a town in Illinois enlisted in the army. In process of time one was sent back a corpse; the other sixteen came back when their time had expired, all with the drink habit firmly fixed. In other words, they were graduates of the army saloon called the canteen. Is it any wonder that the motherhood backed by the Christian sentiment of the country would protest against this method of making moral wrecks of their sons while in the country's service and after being ground out in the Government morality mill, the canteen, turned loose as a menace to society?

Lastly, that the sanitary condition of the army required the canteen—in other words, that the imbibing of beer was conducive to health. This surely will not bear investigation. There is not a life insurance company of note but asks the applicant, Are you a user of intoxicants? and grades him according to the answer to this question. The idea, however, that any form of alcoholic stimulants is conducive to health is absurd. But I will let another of more ability speak on this question. Dr. N. S. Davis Senn says, "Alcohol as it exists in fermented and distilled liquors is a positive protoplasmic poison," etc. Again he says, "As concerns danger to human life every intelligent reader of the public press knows that the ordinary use of alcoholic liquors by persons claiming to be in health is the direct cause of more suicides, homicides and murders every month than are produced by all the other poisons known to toxicologists in a year." As beer is the national drink in Germany, let us have a little testimony from there. Baron von Liebig says, "It is now possible to demonstrate with mathematical certainty that so far as enriching the blood is concerned, the flour that will lie on the point of a knife affords more nourishment than four measures of the best Bavarian beer." Dr. Binz, professor in the University of Bonn, says, "This flooding the stomach and brain with beer, this daily drinking for hours at a stretch, as is customary among great numbers of the lower and middle classes, I regard as a national evil, whether considered from the hygienic, economic or intellectual point of view. The habitual beer drinker is just as much an alcoholic as the habitual schnapps drinker." A long list of German physicians of note could be added to the list of opposers of beer drinking. Bismarck, the great German statesman, said, "Beer makes people stupid, lazy and incapable."

Of course many will say that I am off the track in classifying the canteen as a saloon. That instead of a saloon it is a place of concourse where soldiers could meet and have a social time, where a library was available to get literature to read, etc. Investigation that has been made from time

to time, however, and has revealed the fact that the post exchange is nothing more or less than a beer saloon with this added feature, that there is a bribe held out to the abstainer that the profits on the sale of beer would be set apart for improved food supply. There was the same drinking, carousing and drunkenness that characterized the ordinary saloon. To show how well this bribe or bait has succeeded, one of the procanteeners stated at St. Paul that there were only five per cent. of the army abstainers, thus making 95 per cent. drinkers. Such a showing, although I think far from the facts, gives the strongest argument in favor of doing away with the Government grog-shop, because not nearly all the soldiers will make the army their home but will when their time expires come back to civil life. Then who would say that these graduates of the post exchange would be a benefit to society?

D. I. MCMILLAN.

Sunbeam, Illinois, August 24, 1901.

AN INTERESTING MEDICO-LEGAL POISONING CASE.

To the Editor of the MEDICAL NEWS:

DEAR SIR: In September, 1900, a middle-aged man, in reasonabl good health and with no apparent motive or suspected tendency toward suicide, accidentally took a swallow or more of insect poison (corrosive sublimate in grain alcohol, an ounce to the pint) supposing he was getting whiskey, and not knowing the difference till the poison burnt his lips. The family at once gave him mustard-water and followed as fast as they could ma make them ready with the whites of egg and milk. Free emesis occurred and continued more or less at intervals for two or three hours, during which time I saw him. The vomiting threw the caustic material into the naso pharynx and through the nose, and made an eschar here as well as in the mouth and throat.

The man became almost immediately stupid, apathetic, somewhat incoherent, and manifested an unaccountable aversion or petulance toward his wife and child with whom he had always been especially affectionate.

Noticing that the condition two days after the accident was not unlike that of a severe burn, both in the local eschar and in the general condition of the patient, I made some explanation to the family of the mania or frenzy occasionally following severe burns, and recommended a careful watch over the patient. Following this suggestion the family enforced a reasonable system of precaution.

The third was the only day the catheter was required, but the general condition continued practically unchanged. On the fifth day the slough was beginning to separate a little on the anterior pillars of the fauces and on the sixth the separation was a little further advanced, but no part of slough was yet fully loosened. During this day, while the nurse was temporarily absent from the room, the patient wandered out, a distance of probably twenty feet, to the porch and shot himself in the right temple, being seemingly dead when the nurse got back to him. It was not known how or where or when he had got the revolver—there were always several about the house, but this one had not been seen recently.

There was life insurance in three fraternities, three of which paid without question, but the fourth refused to pay in full on the ground that the death had been a suicide. In the action to recover from the insurance company—Margaret A. Barber vs. The Knights and Ladies of Security—the jury found a general verdict for the plaintiff. They also returned answers to several special questions in which the fact of chief interest is their finding that the "proximate cause" of the death was the accidental dose of sublimate solution. Their findings were made, of course, under proper instructions and definitions by the Court.

H. L. CHAMBERS, M.D.,

Lecompton, Kansas, August 20, 1901.

PARIS LETTER.

(From Our Special Correspondent.)

PARIS, August 1, 1901.

DR. LAVERAN MADE A MEMBER OF THE INSTITUTE —SANATORIUM FOR LEPROUS PATIENTS—LUMBAR PUNCTURE—NOTIFICATION OF VENEREAL DISEASES — COCAINE INJECTIONS — NOVEL METHOD OF CONSULTATION—BERLIN CONGRESS OF SURGERY.

THE death of Dr. Potain, the celebrated heart specialist, having created a vacancy in the Academy of Sciences, at a recent meeting his successor was chosen. The votes were cast three times as a first ballot gave no result. Dr. Laveran, an army surgeon, professor at the Val-de-Grace, and known for his works on intermittent fever, was elected by 40 votes against 26 given to Professor Richet, the physiologist.

There has been some talk recently in France of founding a sanatorium for leprous patients and a small place called Ronceux, in the Vosges, was chosen. The inhabitants of that part of the country have objected to this though the chances of infection are really small. Several cases of leprosy are to be seen at the St. Louis Hospital in Paris, and there exist down south near the Mediterranean several small foci of leprosy, which has however no tendency to spread. Sanatoria of this nature exist already in different parts of Europe. There is one at Bergen in Norway and the patients are allowed to go about outside the sanatorium. There is another one at Christiania in Sweden, where there are some cases of leprosy. At a discussion held at the Academy of Medicine it was decided to send the following answer to the Minister of the Interior, who wished to have the opinion of that society on the subject. A private sanatorium would be found useful if placed near a region where lepers are found. If this

institution were well supervised by the Government, and its interior working based on the highest sanitary conditions there could be no danger offered to the public health. On the other hand, as such supervision cannot be carried out, it would be well that a report be made out to that effect, showing how this would be best managed.

Still another indication for lumbar puncture has been found by Dr. Tuffier, and this is fracture of the skull. The rachidian fluid is rose-colored in such cases, and blood corpuscles can be found with the aid of the microscope.

A recent decree in Westphalia in Germany declares that physicians should notify the authorities of the existence of venereal diseases. Though this decree has been established in a most praiseworthy spirit, it is diametrically opposed to professional secrecy, and it hardly to be supposed that patients will care to have the nature of their disease confided to every body.

The use of intrarachidian injections as a curative agent is still as much as ever to the fore. Dr. Pierre Marie and Guillain have been treating a case of lumbago in this manner. Only five milligrams were used and eight minutes after the injection the pain had disappeared, the patient was able to walk a part of the day. They tried it also in a case of scapulalgia with no success whatever, and the result was the same with one of subacute rheumatism of the lumbar region. Professor Deboe said in connection with this treatment that lumbar puncture was too delicate an operation to be used as a routine treatment of lumbago. He had, however, found it efficacious in certain forms of gastralgia due to tabes. In one case, where the patient suffered from acromegalia, a puncture was made and thirty cubic centimeters of fluid were evacuated. The pain ceased at once. In another the patient, who was tabetic, was punctured during one of his paroxysms of pain, and was relieved immediately. A radical cure can not however be expected.

In a Paris newspaper the following method of having a consultation with one's doctor was described. A physician, living near the Place de l'Etoile, was called up by his patient, whose child was ill and coughing, and told that croup was feared. The doctor asked a few details as to the illness, and then told the mother to put the child before the telephone and to make him cough. After listening a while the physician said it was only a simple cough and added there was no need of his coming.

Dr. Jayle, the assistant of Professor Pozzi, has just written a letter on his visit to Berlin to attend the Congress of Surgery and his impressions are interesting for various reasons. He said he found that he was no longer impressed as he was the first time; greater progress had been made in Paris whereas in Germany it seemed that surgery was more *in statu quo*. He remembered a few words said several years ago by a Berlin assistant, who remarked that one should go to Paris to see how one should not do, and it could be truly said that this was no longer so; what is more, if it were not that he did not believe in disparaging others, he might return the compliment as to certain things. One thing to be envied, however, was the faculty the Germans have for organizing different methods of instruction; their vacation courses, for instance, should be imitated. Speaking of the Congress, Dr. Jayle was struck by the fact that no operations were performed in Berlin while the Congress was in session, and also that an exhibition of surgical instruments and surgical appliances was established in the building in which the Congress was held. The different instrument-makers are thus stimulated to do better. Dr. Jayle also made a few remarks about the Berlin hospitals. No new ones have been constructed, but the new operating-room at the Moabit is much larger than the old one; at the Charité, the kitchen is a marvel of cleanliness and much better arranged than those of Boucicaut or Trousseau, and yet, Dr. Jayle adds, in culinary matters it is not at Berlin that one should go for instruction. The new Pathological Institute of Virchow is very well planned and quite a number of specimens are labeled in Virchow's handwriting. A new hospital has been constructed at Lichterfelde, near Berlin. So far the surgical and medical wards are the only ones that are complete, but sufficient ground has been bought to erect a hospital containing 400 beds. This hospital is to be used for patients from Berlin as well as from the neighboring localities.

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

THE BACTERIOLOGY OF PUERPERAL FEVER—PREGNANCY AND TUBERCULOSIS.

E. WINTERNITZ (Tübingen), at the Ninth Congress of German Gynecologists, at Giessen, May 31, 1901, read a paper on the bacteriological considerations and their bearing upon the general therapeutic management of puerperal fever. He said that there are many disturbances of temperature during the puerperium which can not be clinically accounted for with any degree of accuracy as to their cause. In such cases it is very probable that the bacteriologist can by studying the germs contained in the pus or in the lochia at least furnish a satisfactory guide to the etiological factors at the base of such fevers as are accounted for caked breasts, phlebitis and the other commoner origins of a rise of temperature after childbirth. In his clinic at Tübingen he has made a series of observations and has found that out of 141 cases in which later true clinical puerperal fever developed there was no example in which the bacteriological features of the lochia were negative. On the contrary all were so unmistakably positive as to render a diagnosis of threatening puerperal fever in its true clinical form very easy and certain. Furthermore it was fully established that of all the febrile disturbances fully two-thirds were proved to be of the

puerperal type by this bacteriological investigation and the remainder to be due to the simpler non-infectious varieties. A comparison with the reported results of other experimenters in the same field shows their totals to be in the ratio of 63 to 37 per cent. respectively—that, is, entirely confirmatory of the author's statistics. Of the well-known germs, the streptococcus is by far the most common it being found in 63 per cent. of all the cases. Next in line come the mixed infections wherein are found the saprophytic bacteria and the anaerobic bacteria, both not yet very well known, associated with the more purely pyogenic varieties. Prominent in such cases are the staphylococcus and the gonococcus and sometimes the bacterium coli commune. At the Tübingen clinic the therapeutic management is the following. So soon as a bacteriological examination has shown that pyogenic germs are present intra-uterine douches of any of the familiar and reliable disinfectants should be given with the hope of destroying at their very focus the germs and their products. It is a significant fact that they have never yet been able to prove a bacteriological annihilation of the germs. Clinically, however, these douches produce a cleansing and are followed by a decrease of the fever in a manner to show that they certainly have considerable value. Perhaps in the future some germicide will be discovered which will be focally totally destructive to the germs. At any rate it seems certain that no single step is so valuable as a bacteriological examination of the lochia as a foundation of the future handling of the case.

KAMINER, at the Society for International Medicine at Berlin, June 3, 1901, read a paper on the subject of pregnancy, childbirth, and tuberculosis and their mutual influence. His points were that, while the gynecologists were teaching the destructive and unfortunate results of abortion, the physicians were learning the conditions under which induced abortion is not only justifiable but positively indicated as a therapeutic measure. Chief among these may be mentioned the various organic diseases of the heart and tuberculosis, especially pulmonary tuberculosis. The gynecologist desires to limit the measure purely to such cases as are diseased purely in virtue of the pregnancy. Maragliano has gone so far as to claim that every pregnant woman should be deprived of her fruit as soon as any pulmonary focus is discovered. In work in this field at the Senator Clinic and the Clinic for Tuberculosis Kaminer has followed out fifty cases of tuberculosis complicated with pregnancy and found that thirty-three suffered greatly in virtue of their infection both during the gestation itself and at the labor also. The other seventeen women apparently underwent no inconvenience from the complication. Along with the ordinary inconviences of pregnancy (vomiting, lowered nutrition, impeded circulation) there appear in his opinion the deleterious factors of the puerperium much augmented, which he seeks to explain by uterine absorption. Whether in the better classes of society these conditions are wholly ameliorated he is not able to determine definitely. On the other hand, however, he is convinced that an interruption of gestation is the one method of treating these subjects rationally. Of the various means at hand for such a purpose, artificial abortion is the best. With the aid of skilled gynecologists he has carried out this therapeusis eighteen times and found that in twelve of the patients he was able to control and then bring their tuberculosis to a standstill. He further thinks induced abortion to be indicated whenever the first signs of tuberculosis appear during any pregnancy and whenever any symptoms of a lighting-up of an already quiescent process are evident. It is also an important point to consider how to prevent impregnation among the tuberculous.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held May 21, 1901.

E. Franklin Smith, M.D., Chairman.

Anomalous Rheumatism.—Dr. Brill presented a case that had been under treatment at Mt. Sinai Hospital with peculiar rheumatic symptoms. The family history was negative and there was no rheumatism in the patient's past personal history. There had been slight jaundice. The patient denied gonorrhea and syphilis. The joints had not been swollen, but there had been some fever and soreness. There had been a peculiar eruption on the body for several weeks. When the patient came into the hospital the temperature was 100° F. and rose in the afternoon to 103° F. The pulse-rate corresponded to the temperature and its variations. The eruption on the body resembled erythema multiforme. During the course of a day or two in the hospital the patient developed some signs of pleurisy on the right side; a little bit later there were complaints of tenderness over both tibiæ. Swelling took place at the sternoclavicular junction and considerable tenderness was also manifest there. The character of the skin eruption changed and papules were noticed. These resembled erythema nodosum. The blood-count showed that there was distinct leucocytosis, sixteen to eighteen thousand leucocytes were found in a cubic millimeter. Imperfect ankylosis of the fingers occurred as the result of involvement of the joints of the fingers.

Treatment.—Ordinary rheumatic treatment failed to influence the course of the disease. The salicylates seemed to influence the temperature course, but symptoms that seemed to be rheumatic manifestations continued to occur. Blood-cultures were taken and in one out of five of them, with very careful precau-

tions taken to avoid any chance contamination from the skin surface, streptococci were found to exist in the blood. Notwithstanding careful treatment in the hospital, the patient continued to suffer from intermittent fever that sometimes reached 105° F. in height and then descended to normal, only to recur after a day or two. No purulent condition could be found that might explain this seemingly septic temperature. Careful examinations were made of the exterior of the body and of the internal parts that might possibly contain an abscess. After the discovery of the streptococcus in the blood, antistreptococcic serum was administered. Almost immediately afterward the symptoms began to abate. After the injections had been continued for some days, the patient's temperature remained normal and further rheumatic symptoms failed to occur. The patient, who is now in reasonably good health, was presented to the section.

Bacteriology of This Case.—Dr. Libman said that in cultures taken from the blood of this patient he had found a streptococcus. Some time ago Wassermann of Berlin reported that he had found what seemed to be an attenuated streptococcus in the blood of a rheumatic patient under treatment at the Institute for Infectious Diseases, Koch's department of the Charité Hospital at Berlin. This streptococcus grew well only on a special peptone solution. English observers reported only a short time ago that they had found a streptococcus in the blood of a rheumatic patient. The streptococcus found by Libman grew on a solution of serum agar with glucose. This streptococcus when inoculated into the guinea-pig failed to produce any effect. Rabbits inoculated with it were seen to limp after a few days. They recovered completely from it, however.

Cultural Characteristics.—The streptococcus found by Libman grows very well on Wassermann's medium, but is not very tenacious of life when grown artificially. After several generations it failed to be successfully cultivated. The fact that it grows on Wassermann's medium does not stamp it as assuredly of the same nature as the streptococcus described by Wassermann. Dr. Libman has found that practically all streptococci grow well on Wassermann's medium. The streptococcus under observation at Mt. Sinai seemed to resemble the one described by Wassermann in many ways and is of interest because found in a case of rheumatism in which the constitutional invasion and the manifold symptoms pointed very clearly to the fact that the microbe causing the symptoms must be in the blood.

Unusual Human Parasite.—Dr. James J. Walsh presented a specimen of the larval form of tenebrio obscurus. A patient reported that the worm had come from her. As it was a meal-worm and represented the larval stage of a beetle, this scarcely seemed possible. The specimen was forwarded to the entomological department at Washington, which replied that in a certain number of reported cases, though they were very rare, tenebrio obscurus had been found in human beings and occasionally caused symptoms. In this case the patient was using gluten suppositories. It seems not improbable that some of these were exposed and that the beetle laid its ova in them before their use. The heat and moisture of the rectum provided favorable conditions for the development of the larva which eventually found its way out through the anus.

Human Myasis.—Dr. Walsh said that, while scarcely any mention is made of it in the textbooks on medicine, a certain number of winged insects do occur in the larval stages in human beings. There are three or four varieties of flies, the larvæ of which have been expelled from the stomach. Usually the vomiting which causes their expulsion is set up by the irritation of the presence of these parasites. The insects lay their ova in milk or in cheese, or in cooked vegetables that are allowed to stand over, and these are taken into the stomach and there develop into the larvæ of the fly. Occasionally the parasites are passed either in the worm stage, or when already possessed of wings and, as a rule, they do not give rise to any very serious symptoms.

Human Canthariasis.—In a certain number of reported cases the larvæ of beetles have been found in human beings. It was suggested some time ago by the president of the London Etymological Society that the symptoms which these insects cause should be grouped under the name of human canthariasis. Both the meal-worms, tenebrio obscurus and tenebrio molitor, whose adult stage is represented by the ordinary black beetle so familiar in our houses, have been found in human beings. It is probable that they do not act as true parasites, but having been accidentally introduced, usually in the ovum stage, they reach their development in the human body and then find their way out.

Human Scholechiasis.—It was suggested that the name scholechiasis should be applied to those cases in which the larvæ of the lepidoptera were found in human beings. Butterfly larvæ have not infrequently been found in the stomach and occasionally in the alimentary canal of human beings. The patients are usually children and the swallowing seems to be accidental. The question of winged parasites in the various cavities of the human body developing and obtaining their nutrition from the human being until the winged stage is reached is a rather large one. A number of such parasites have been found and some of them caused very severe symptoms, especially in the nose and accessory sinuses.

Site of Gastric Cancer.—Dr. Stephen S. Burt read a paper on colloid cancer of the stomach

and omentum. He discussed the question of the location of cancer of the stomach and showed that in more than one-half the cases the cancer occurred at the pylorus. Of the 1,300 cases collected by Welch, nearly 60 per cent. were situated in the pyloric region. Of 91 additional cases that Dr. Burt himself has collected, 47 occurred at the pylorus. Other parts of the stomach seem to have no special aptitude for cancer, except that a large number occur near the esophageal opening. A very remarkable thing is the great infrequency of cancer of the duodenum, which is somehow wonderfully spared from the development of malignant growths.

Colloid Cancers.—Of the 91 cases of cancer of the stomach that Dr. Burt has collected, 12 were of the colloid variety; 4 of these involved the omentum also. In most of the cases the whole of the stomach-wall was infiltrated and yet stomach function was only very slightly impaired. The viscus was able to accomplish its work much better than when cancer occurs at either of the orifices. The stoppage of the flow of nutritional material in orifice cancer soon becomes serious and a vicious circle is set up that rapidly makes the condition of the patient worse and worse.

Diffuse and Localized Cancer.—While in most cases colloid cancer is diffuse, occasionally a localized tumor occurs. In 4 of the cases that Dr. Burt collected there was an extension to the peritoneum. The gelatinous form of colloid cancer has a special tendency to spread to the peritoneal surface. It infiltrates the layers of the gastro-intestinal tract, and then on the surface of the peritoneum may spread to the diaphragm; thence it usually finds its way into the thorax and involves the pleura and pericardium. It not only attacks the peritoneal covering of the viscera, but invades the viscera themselves. Small nodules of colloid cancer may even occur in extensive metastatic cases in the diploe of the cranium. Colloid cancer has an especial tendency to break down and in pus cases a marked, acute cachexia develops. When ulceration does not occur, dropsy develops and is apt to give considerable trouble.

Pathological Appearances.—Even with the naked eye the alvelor appearance of this form of cancer may be readily seen. Within the large alveoli, mucoid material occurs. Most pathologists consider this substance due to a degeneration of cancer tissue. Langerhans, however, considers that this is a specific form of cancer tissue. The neoplasm grows by the accretion of this tissue. The most characteristic alveolar appearances are found in the more recent parts of the tumor. This type of cancer has been spoken of as a reversion to a lower form of tissue, an original embryonic type, but not a true degeneration. On the other hand, this kind of tissue, being very poorly nourished, would show special tendency to ulceration even more frequently than at present, but for the indolent character of the mucous tissue. The mucus is therefore considered a protective provision of Nature.

Theories of Etiology.—For this form of cancer, Conheim's explanation of the origin of such neoplasms seems most suitable. During the embryonal stage of development, bits of germinal tissue, whose nisus generativus had by no means been exhausted, are nipped off from the related tissues in which they lie and become enclosed in neighboring tissues. Later on in life, some injury, or a reduction of the resistive vitality of the individual, excites these germinal cells into activity with the result that embryonal tissue of a special malignant character develops and its secretions, acting as toxins, are absorbed into the general system producing the cancer cachexia. Some pathologists assert that colloid cancer is always secondary and that a primary nodule of cancer will be found hidden away in some organ. They insist that this cancer nodule should be carefully looked for, as it explains better than anything else the origin of the colloid condition. One of the most striking things about colloid cancer is the fact that it is prone to cause almost no symptoms, or only symptoms of the most indefinite character, for a long time. This rule applies especially to the very diffuse forms of the neoplasm. Nodular colloid cancer is more easily recognizable. Some of the difficulties of diagnosis are illustrated in the following case.

Symptomatic Course.—The patient was a man, forty-three years of age, who came in May, 1900, complaining of pain in the right hypochondrium. For some time before he came to the hospital his abdomen was enlarged and his feet swollen. He had suffered considerably from constipation and there were some signs of a decrease in the amount of urine passed. Physical examination of his abdomen showed considerable tension of the abdominal walls and ill-defined fluctuation could be made out. There seemed enough fluid to demand tapping and on the insertion of a cannula 100 ounces of fluid were withdrawn. Notwithstanding the withdrawal of this large amount, there was still a feeling of resistance in the abdominal wall. Sufficient relaxation occurred, however, to enable the examining hand to detect the presence of some tumor nodules. The inguinal glands were enlarged, but the supraclavicular glands were not at all affected.

Repeated Tapping.—The patient's mind continued clear, notwithstanding the progress of the case, and he was tapped altogether some twelve times. Each time over 100 ounces of fluid were withdrawn. Toward the end as much as 250 ounces were withdrawn and the patient had to be tapped every few days. During the course of one of these tappings there came through the cannula some characteristic portions of the tumor. These, when placed under the microscope,

showed at once that the neoplasm was of colloid nature. The patient's mind continued clear to the end and death took place from asthenia. This is one of the few cases of colloid cancer in which the diagnosis has been made before death. There is nothing characteristic about the symptoms by which the diagnosis can be more than suspected, unless, as happened by fortunate accident in this case, some portion of the tumor can be obtained for microscopic examination, when, of course, the diagnosis is easy.

Rarity of Colloid Cancer.—Dr. Beverley Robinson said that colloid cancers are rather rare. He has seen none of the stomach and not more than three of the omentum. The marked tendency of such pathological rarities to occur in groups, is well illustrated by the fact that, just about the time that Dr. Burt's case came under observation, a patient suffering from the same condition entered St. Luke's Hospital. This patient's case is interesting, because the condition was not diagnosed until the autopsy, notwithstanding the fact that an exploratory incision was made.

Colloid Growths and Peritoneal Tuberculosis.—In the case under Dr. Robinson's care, the sense of tension in the abdomen and the evident presence of fluid had given rise to the conclusion that tuberculous peritonitis was present. The patient was referred to the surgical ward, where incision was made and the fluid evacuated, but it reaccumulated again before long. The patient was returned to the medical ward, where he was under observation for some time. In this case there was very little fever, not much emaciation, and the ascitic fluid seemed to be of the ordinary character. At the exploratory laparotomy a number of small tumors of the mesentery were noted, but these were considered to be enlarged tuberculous glands. The feeling communicated to the fingers by the presence of these little tumors is not unlike that produced by tuberculous glands, so that deception is easy in the matter.

Differential Diagnosis.—Dr. Thomas Satterthwaite said that colloid cancer is very rare. It constitutes at most two per cent. of all forms of cancer. Colloid cancer of the stomach is proportionately much rarer than this. The only absolutely sure method of diagnosis is by exploratory incision with the removal of part of the tumor for diagnostic purposes. The postmortem appearance of affected tissues is not unlike that produced by tuberculosis. A number of white glistening bodies are seen, many beneath the serous covering of the viscera, looking not unlike miliary tubercles.

Etiology of Colloid Cancer.—Waldeyer insists that all peritoneal colloid carcinomata are secondary and that the primary nodule of cancer can always be found, if looked for. Pathologists generally do not accept Langerhans's theory that the colloid material is the specific tissue of the neoplasm, but insist on the contrary that it is a form of degeneration. The colloid change in the neoplastic tissue is really Nature's effort at eradicating the neoplasm. The tissue thus lacks vitality and is liable to break down. As a rule, however, the neoplasm has so impaired the forces of the individual that if a suppurative process results, instead of proving helpful, it constitutes another drain upon the patient.

Symptomatology.—Dr. Einhorn said that often the only symptom produced by colloid cancer is a feeling of discomfort. Sometimes even this is absent and loss of flesh is what calls the attention of the patient and friends to the existence of some serious pathological condition. The loss of flesh is, however, not disproportionate to the lessened amount of food which is taken. The appetite is affected rather early in the disease. Needless to say, on examination of the stomach chemically no specific symptoms are found. Lactic acid is not present and there is no modification of the amount of hydrochloric acid. Dr. Einhorn has seen a definitely limited colloid cancer in one case. In all other cases the neoplastic process was diffuse.

Suspicious Case.—Dr. A. H. Smith said that he had under observation at the present time a case in which there was considerable ascites, though there was no enlargement of the liver and very little evidence of kidney disturbance. The urine contains no albumin and only an occasional hyalin cast. On movement of the patient, there is very little change of level. Four weeks ago an attempt at tapping brought away a very little fluid. The sensation given by the trocar was that of contact with something more solid than the intestines themselves. The urine was at times scanty, but this seemed to be due to the intra-abdominal pressure causing inaction of the kidneys. There has recently been a better flow of urine and this was thought to be due to the fact that a neoplasm was present and that somehow the tumor had changed its relation to the renal vessels so that instead of pressing on them as before, it left the circulation in them free. The patient continually grows weaker and is at present in very poor condition. There is a doughy feel in the abdomen, though there is an absence of nodular enlargements. There are no serious gastric symptoms, though the loss of appetite is marked; there is no pain nor vomiting. The presence of colloid cancer is suspected.

Diagnosis Antemortem.—Dr. Burt in closing the discussion said that colloid cancer is very rarely diagnosed before death. Fagge once saw a case when on a visit to the country in which the diagnosis was made before death. It is often said that there is no fluid in the abdomen in these cases, but ascites is sometimes one of the prominent symptoms. This is especially true if the tumor does not fill the abdomen. Pepper reported a case in which intra-abdominal pressure became very high as the result of the accumulation of fluid. In one reported case colloid material was vomited. When the tumor grows large and the ascites is also a marked feature of the case, the urine is apt to be very much reduced in amount. This will soon produce uremic symptoms, unless

the pressure is relieved by tapping. Other important functions will also be interfered with because of the disturbance of circulation due to the intra-abdominal pressure.

Intracranial Neoplasms and the Neurons.—Dr. F. Savary Pearce of Philadelphia read a paper containing some points of intracranial neoplasms considered from a neuronic standpoint. Dr. Pearce said that cerebral neoplasms are rather frequent. The neoplasm could have been removed by operation in about 7 per cent. of the 600 cases studied by Dr. Starr. Differential diagnosis as to the location of tumors is extremely important from an operative standpoint; therefore, if points for diagnosis can be gleaned from the neuronic theory, they would be very valuable. Rapidly growing tumors produce a condition of shock, with consequent retraction of the neurons. Slow growing tumors do not produce shock and consequently many of the acute localizing symptoms are missed.

Functional Symptoms.—Most of the hysterical symptoms have their only rational satisfactory explanation, if one accepts the theories of separation of the neurons and of their wrong connection at times, because unaccustomed nerve-endings are in contact. There is a perversion of neuronic activity with consequent disturbance of sensory impulses. Galvanism of the scalp, as is well known, may cause headache. This seems to be due to the fact that sensory neurons are interfered with and in consequence of their irritation their endings are pressed close together, as when irritated, and this is translated into pain.

Sensory and Motor Disturbances.—Sensory and motor pathological phenomena are best explained as perversions of neuronic activity. When there is the sensation of subjective noise in the ear, as in the oft-complained-of tinnitus, the basis of the disturbance would seem to be a lining up of the neurons that usually conduct sounds, but without the ordinary external stimulus of noise to produce the lining up. In such motor phenomena as chorea, it would seem that there was an active disturbance of the motor neurons, with a consequent production of involuntary motion.

Theory of Neuronic Motion.—Dr. Charles L. Dana said that if by the neuron theory is understood the separation of the dendrites of nerve-cells from the end-brushes of nerve-cells, the discussion seems futile, because this theory is not supported by any biological evidence except in some very low animals. It is only a conjecture, the foundation of a theory that may serve for pleasant hypotheses. It is true one may consider that tumors may push apart neurons and so cause symptoms. The idea is grossly material, however, and does not add to diagnostic power.

Advances in Brain Tumor Diagnosis.—There are some recent advances in the diagnosis of brain tumors that are worth discussing. Examination of the blood may throw some light on the nature of the tumor. Marked leucocytosis shows that abscess or inflammation is present. More leucocytes are found in the blood in sarcoma, than in carcinoma. There are some diagnostic advances that seem to point to the fact that the eosinophilia may be of diagnostic aid. Stereognosis is absent when the cortex is slightly affected in the motor region. This symptom is of more significance than is the anesthesia. Babinski showed that the flexor response of a large toe occurs when there is a lesion of the motor cortex or of the pyramidal tract.

Tumors and Neurons.—Dr. Sachs said that even the smallest of brain tumors compared to a neuron was as a giant to a pigmy. The growth of tumors could therefore not be expected to produce any very definitely localizing symptoms, because of interference with the functions of special neurons. Too many neurons in the neighborhood of a tumor were affected by it for this to be expected. While the retraction theory of the neurons is popular in Philadelphia, it does not meet with very general acceptance, or approval, in other places. There is no substantial proof that neurons do actually move during life and their supposed movement is a mere speculation that gives a quasi foundation to a number of interesting theories.

Silent Parts of Brain.—As a matter of fact, one cannot hope for definitely localizing symptoms from tumors in all parts of the brain. As Seguin pointed out, no matter what influence is exerted on certain parts of the brain, no symptomatic response seems to occur. These are the so-called silent parts. Only very limited parts of the brain give special symptoms, because of increase of pressure in their neighborhood and it is only when tumors occur in these parts that one can reasonably hope to trace their localization by means of the symptoms produced.

Recent Work on Tumors.—Dr. Max Schlapp said that recent nervous pathology contains some important and suggestive material for the diagnosis of brain tumors. It is now recognized that they are not as distinctly separated from each other in their course to the brain as has been thought, and that there are series of sensory nerve-fibers which come down from the brain and whose disturbance may easily occur as the result of brain tumor. The disturbances of sensation thus caused are somewhat difficult of detection, but their pathological basis has been traced by the Marchi method and this may lead to the discovery of symptoms that will help us in tumor localization.

Splenic Myelogenous Leucemia.—Dr. A. Sturmdorf read a paper on splenic myelogenous leucemia complicated by pulmonary, laryngeal and faucial tuberculosis. He also presented the patient and microscopical specimens of the blood changes. When the child came for treatment, she was suffering from night-sweats and had lost twelve pounds in weight. A sister who suffered from tuberculosis had recovered, but another had died from the disease. The patient was phthisical and had panniculus adiposus. There were eczematous patches on the elbows and knees.

Blood-Count.—The proportion of white blood-cells to red cells was one to eighteen. The number of white cells to the cubic millimeter was 150,000. Paroxysms of fever occurred occasionally and at these times the number of myelocites was increased while the number of polynuclear leucocytes was decreased. There seemed to be a distinct connection between these changes in the blood and the febrile course of the disease.

Treatment.—Potassium iodide was given in considerable doses and arsenic was employed for its alterative, tonic effect. The patient's paroxysms of fever became more and more rare, as she began to gain in weight. Even when the variations in the temperature were not very marked, however, distinct changes could be noted in the differential blood-count. Specimens for blood-examination were always taken at least four hours after a meal, in order to avoid any influence that digestion leucocytosis might have in producing changes in the number and relative proportions of white cells present. There were a number of megaloblasts found among the red blood-cells, but the other changes in the red cells were no more than would be found in a case of anemia corresponding in severity to the reduction of red blood-cells found in this case. There seems every reason to think now that the improvement in the patient's condition will continue and that the case has taken on a hopeful aspect.

NEW JERSEY STATE MEDICAL SOCIETY.

THE one-hundred-and-thirty-fifth annual meeting of this Society, which is the oldest medical organization on the American continent, was neld at Deal Beach on June 25, 26 and 27, 1901. There was a large attendance of members, and among the visitors was a delegation from the New York State Medical Association, consisting of Drs. John A. Wyeth, J. A. Corning, F. H. Wiggin, and Wm. F. Leszynsky.

Tributes to the memory of the late Dr. William Pierson of Orange, who died while holding office as the President of the Society, were paid by Dr. T. W. Harvey and others.

Dr. J. D. McGill of Jersey City, First Vice-President, opened the scientific proceedings by delivering an Address in which he surveyed the duties and defined the qualifications requisite in a medico-legal expert.

Thereafter a number of reports were read. One, dealing with diseases that had prevailed in the State during the year, expressed regret at the neglect of vaccination which had grown out of the rarity of smallpox in recent years and the false feeling of security which had thereby been engendered. Another referred to the medical inspection of schools and a third recommended the adoption of measures for the establishment of a State sanatorium for tuberculosis. The necessity of securing legislation for the prevention of the abuse of public charities and for obtaining State aid for hospitals also received attention.

Addresses on the progress in surgery, diseases of the nose and throat, and bacteriology were delivered respectively by Dr. Charles Young of Newark, Dr. B. A. Waddington of Salem, Dr. D. H. Bergey of Philadelphia.

Features Practicable for Preventing the Spread of Tuberculosis.—Dr. Henry Mitchell of Asbury Park read this paper. He showed, by the quotation of statistics and otherwise, the good results that had been accomplished by the establishment of sanatoria and the adoption of improved sanitary and hygienic methods; but said that a much more systematic campaign must be engaged in if physicians were to succeed in stamping out this most deadly of all diseases.

Arteriosclerosis and the Nervous System.—This was the subject of a paper by Dr. C. L. Allen of Trenton. The disease was usually associated with old age, but contributory causes were to be found in heredity, syphilis and the abuse of alcohol. The direct cause was the want of a sufficient blood supply, and the treatment called for was attention to the general health, hygiene and the free use of potassium iodide. In the course of the discussion which ensued one of the speakers advocated a return to the use of natural foods, chiefly nuts and fruit, and the avoidance of overeating.

The subject of Infant Feeding with special reference to the difficulties that were encountered in the management of infants deprived of natural milk was discussed in a paper by Dr. Alex. McAllister of Camden.

Some Observations on Suprarenal as a Hemostatic.—This was contributed by Dr. Norton L. Wilson of Elizabeth and gave the results of his own experiences and quoted those of others in the use of the active principle of the suprarenal gland in the treatment of nose, throat, eye and ear diseases.

Dr. Walter B. Johnson of Paterson said that adrenalin was a great improvement over the suprarenal gland, inasmuch as it was clean and not so difficult to keep as the mother substance.

Neuralgia and Allied Affections.—Dr. Wm. M. Leszynsky of New York showed how important it was to discover the origin of the disease in each case and treat it. It was desirable to begin with local rather than constitutional treatment, though judicious management of the general health was always advisable.

Plea for the Physician on the Witness Stand.—Dr. Daniel Strock of Camden pointed out that in New Jersey and other States, where no special enactment had been passed to modify the old common law which had been introduced from England, physicians who were called as witnesses were completely at the mercy of the cross-examining lawyer, who could force them to reveal private communications made to them by their patients. After discussion the matter was referred to the Committee on Legislation, with instructions to adopt measures to secure the passing of a law to ensure the reasonable protection of physicians who were called upon to testify in matters involving professional etiquette.

Modern Treatment of Gonorrhea.—This paper was read by Dr. Daniel Currie of Englewood and discussed by Dr. E. B. Silvers of Rahway, Dr. Mortimer Lampson of Jersey City, and others, all the speakers insisting, because of the complications that were apt to arise from it, that the disease should receive more serious and intelligent attention than it frequently did at the hands of general practitioners.

Treatment of Neurasthenia.—Dr. W. B. Stewart of Atlantic City read this paper. In making the diagnosis, care must be taken to eliminate hysteria and insanity, and then it became incumbent on the physician to ascertain the cause of the affection with a view to its possible removal and, in any case, as a guide to treatment. The paper was discussed by Dr. Philip Marvel of Atlantic City and Dr. G. H. Balleray of Paterson, the latter of whom remarked that there was no class of cases in which prophylactic treatment was of greater importance.

Dr. Samuel E. Armstrong of Rutherford, in a paper on "Some of the Infections, Their Genesis, Habitat, Consequences and Prevention," spoke particularly of abscess, syphilis and malaria. In connection with the latter he urged the adoption of concerted measures for the extermination of mosquitoes in New Jersey.

Milk as a Means of Contagion.—This was the subject discussed by Dr. R. C. Newton of Montclair and Dr. H. L. Coit of Newark, who did not agree as to the conclusions to be drawn from an outbreak of diphtheria which was alleged to be due to the milk-supply in the former place.

Intestinal Perforation in Typhoid Fever.—Dr. Joseph Stokes of Moorestown called attention to the importance of early diagnosis with a view to surgical interference.

Dr. Emery Marvel of Atlantic City read a paper showing the advantages to be derived from using ethyl bromide as a primary anesthetic to ether or chloroform.

Dr. Balleray of Paterson read a paper on "The Diagnosis and Treatment of Early Ectopic Pregnancy" and reported a case of Cæsarian section for deformity of the uterovaginal canal.

Cases of tumor of the neck and suppurative choroiditis were reported on, respectively, by Dr. J. C. McCoy of Paterson and Dr. Talbot R. Chambers of Jersey City.

The importance of the X-ray for diagnostic and medico-legal purposes was the subject of contributions by Dr. C. L. Leonard of Philadelphia and Dr. Carl Beck of New York.

Office-bearers for the ensuing year were chosen as follows: President, Dr. J. D. McGill, Jersey City; Vice-Presidents; Dr. E. L. D. Godfrey, Camden; Dr. H. Mitchell, Asbury Park, and Dr. A. W. Taylor, Beverley; Secretaries, Dr. E. W. Hedges, Plainfield, and Dr. Wm. J. Chandler, South Orange; Treasurer, Dr. Archibald Mercer, Newark.

It was announced that the Society is prepared to award a prize of $100 for the best essay on any subject connected with the practice of medicine or surgery, showing original thought or research or adding to the information of the profession.

It was decided to hold the next annual meeting at Atlantic City.

BOOK REVIEWS.

A Reference Handbook of the Medical Sciences. Edited by Albert H. Buck, M.D., of New York. Vol. II. Bla-Chl. Quarto; 838 pages. William Wood and Company, New York.

We expressed ourselves as highly pleased with the first volume of this important work. It was of the greatest value and was a credit to its authors, editor and publisher. This second volume is even better than the first in that it contains certain subjects which are of the greatest importance and which are treated in a highly satisfactory manner by acknowledged masters in their respective lines.

The subject of the blood in its normal and pathological aspects is exceptionally well treated. The lengthy and carefully detailed account of the methods of blood examination in particular are practical and will be of great service to any physician who is away from laboratories.

The article on brain, both macroscopically and microscopically, is monographic in its completeness and is perhaps one of the best accounts of this organ we have seen, apart from special works devoted to the subject. In the anatomical portions Wilder rides rough-shod over the ground and leaves the descriptive field a perfect mass of his idosyncratic etymological phrases which makes it impossible for any student not trained in Cornell to understand what is being said. It is to be regretted that so many minute contraversial points have been allowed to blemish what otherwise might have been a more valuable contribution. The article on the histology is exceptionally valuable and well illustrated.

Some of the articles on materia medica have not received the attention that they deserve in that the terminology is hopelessly antiquated and the analysis of the physiological action much behind the times. The vegetable drugs are among those which are best treated and have been more up to recent work. Take it from all points of view this is a praiseworthy volume in a desirable series.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Transactions of the Medical Society of the State of New York. For the year 1901. 8vo, 524 pages. Illustrated.

The Estivo-Autumnal (Remittent) Malarial Fevers. By Dr. C. F. Craig, 8vo, 221 pages. Illustrated. William Wood & Company.

Mt. Sinai Hospital Reports. Vol. II., for 1899 and 1900. 8vo, 540 pages. Illustrated.